2018 Lower East Coast Water Supply Plan Update



Mark Elsner, P.E.

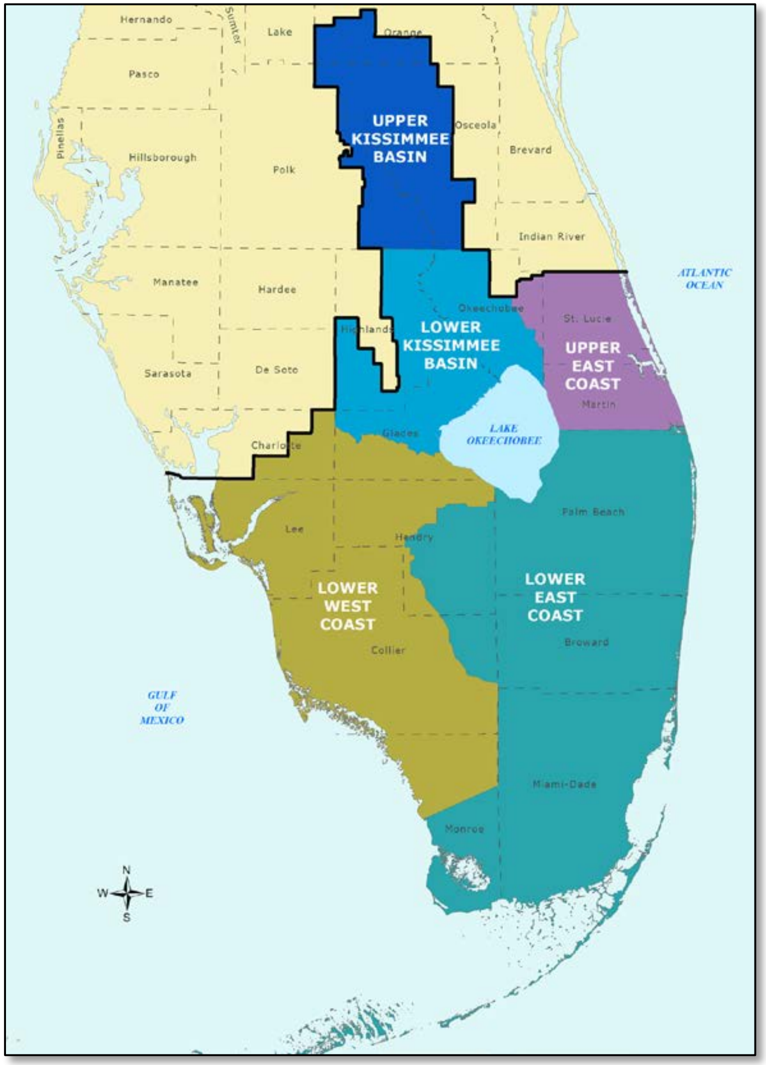
Water Supply – Bureau Chief

2018 LEC Stakeholder Kick-off Meeting

November 30, 2017

Water Supply Plan Requirements

- 20-year planning period
- Demand estimates and projections
- Resource analyses
- Issues identification
- Evaluation of water source options
- Water resource development
  - Responsibility of water management district
- Water supply development
  - Responsibility of water users
- Minimum Flows and Minimum Water Levels
  - Recovery and prevention strategies

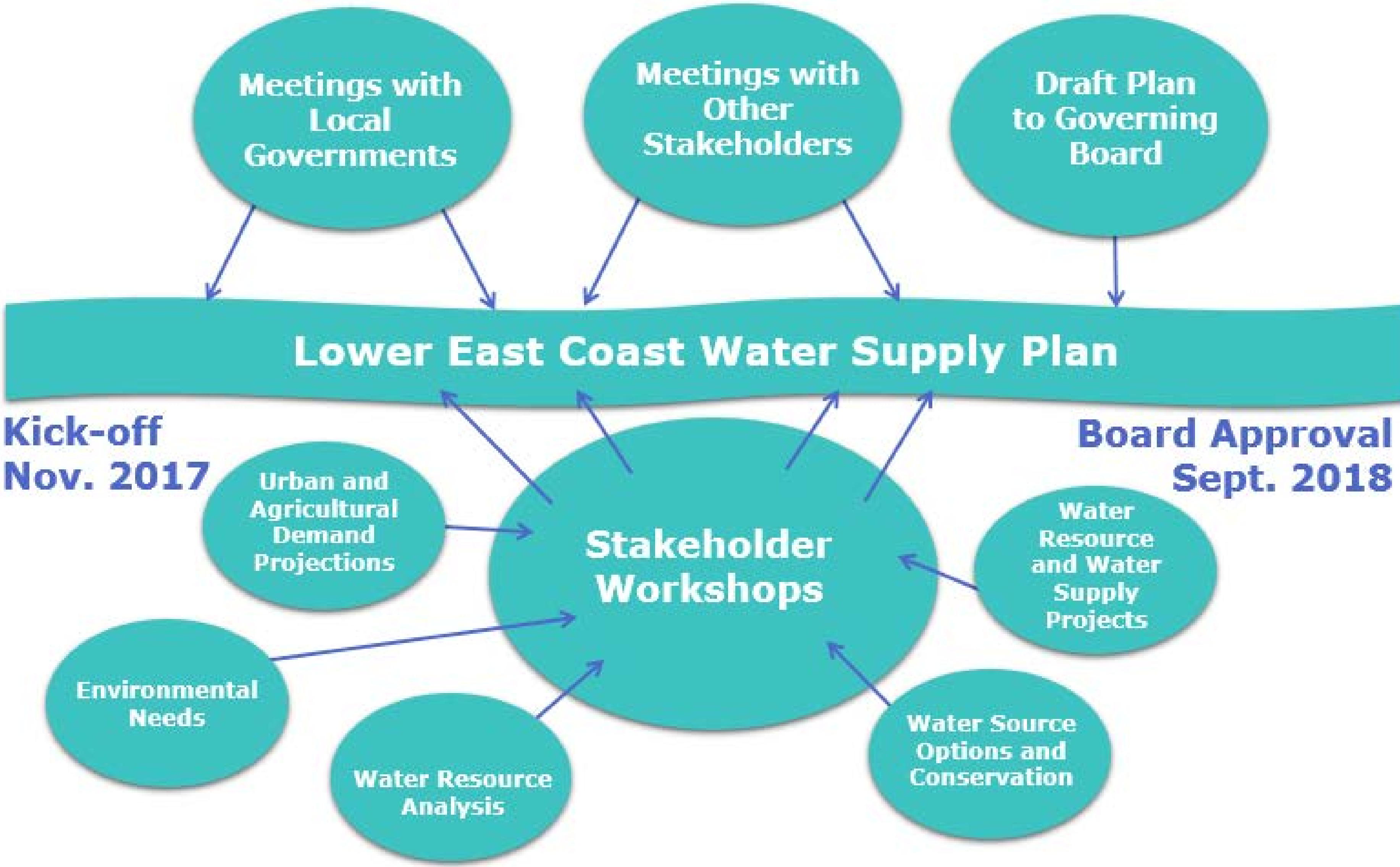


Public Participation

- Stakeholder workshops
- One-on-one meetings and discussions with stakeholders
- Meetings with stakeholder groups
- Governing Board presentations
- Draft documents distributed/posted on website
- Comments on drafts prior to Governing Board approval



LEC Water Supply Plan Update Process



Overview of 2013 Lower East Coast Water Supply Plan Update

(from September 12, 2013 Governing Board Meeting)



Mark Elsner, P.E.

Water Supply – Bureau Chief

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LEC Planning Area

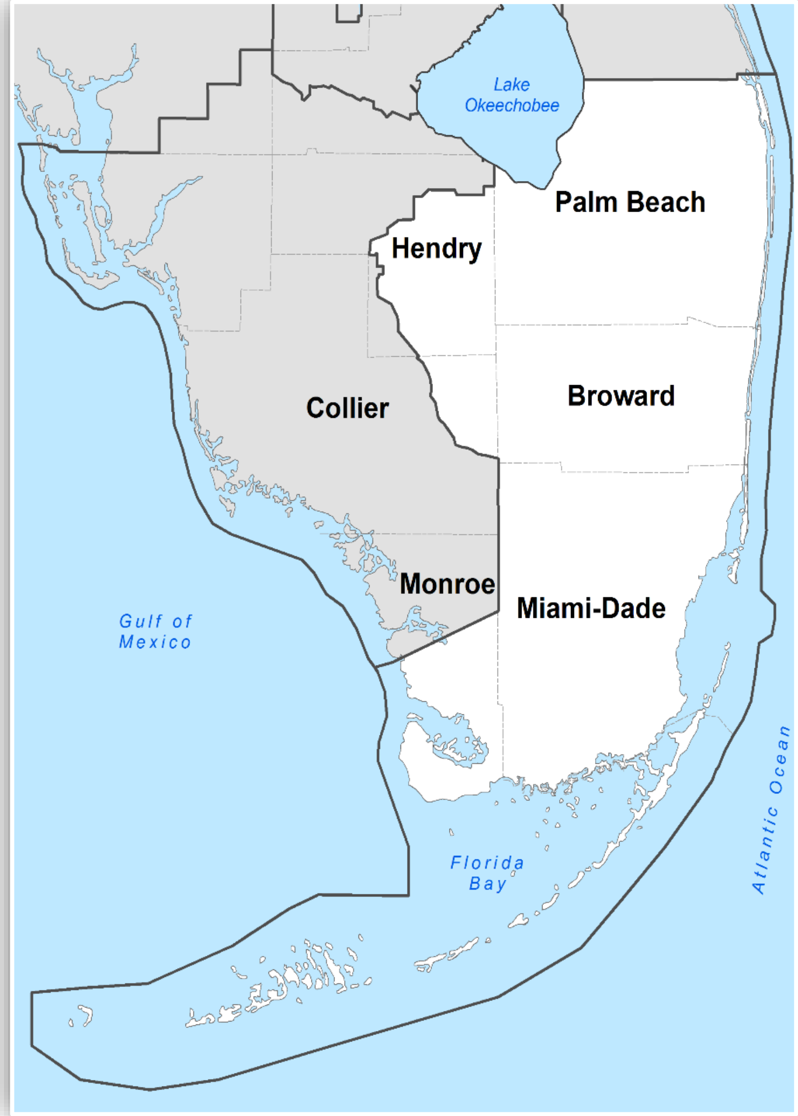
Demands from 2013 Plan

- Planning Horizon 2010-2030
  - Population:
    - 2010 5,637,725
    - 2030 6,666,866

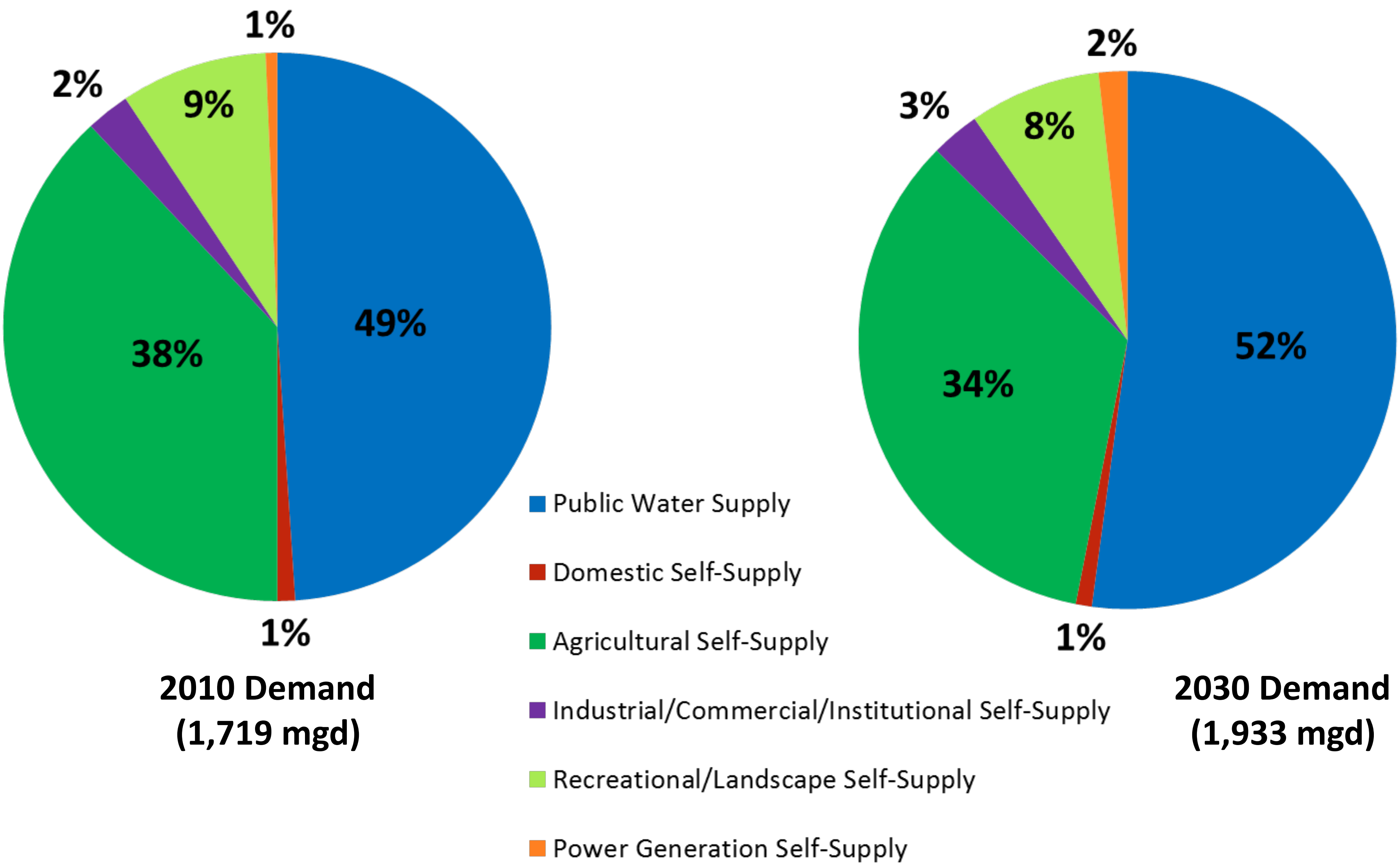
    18% increase
  - Irrigated agricultural acreage:
    - 2010 575,316
    - 2030 575,897

    Slight increase (<1%)
  - Gross water demands:
    - 2010 1,719 mgd
    - 2030 1,933 mgd

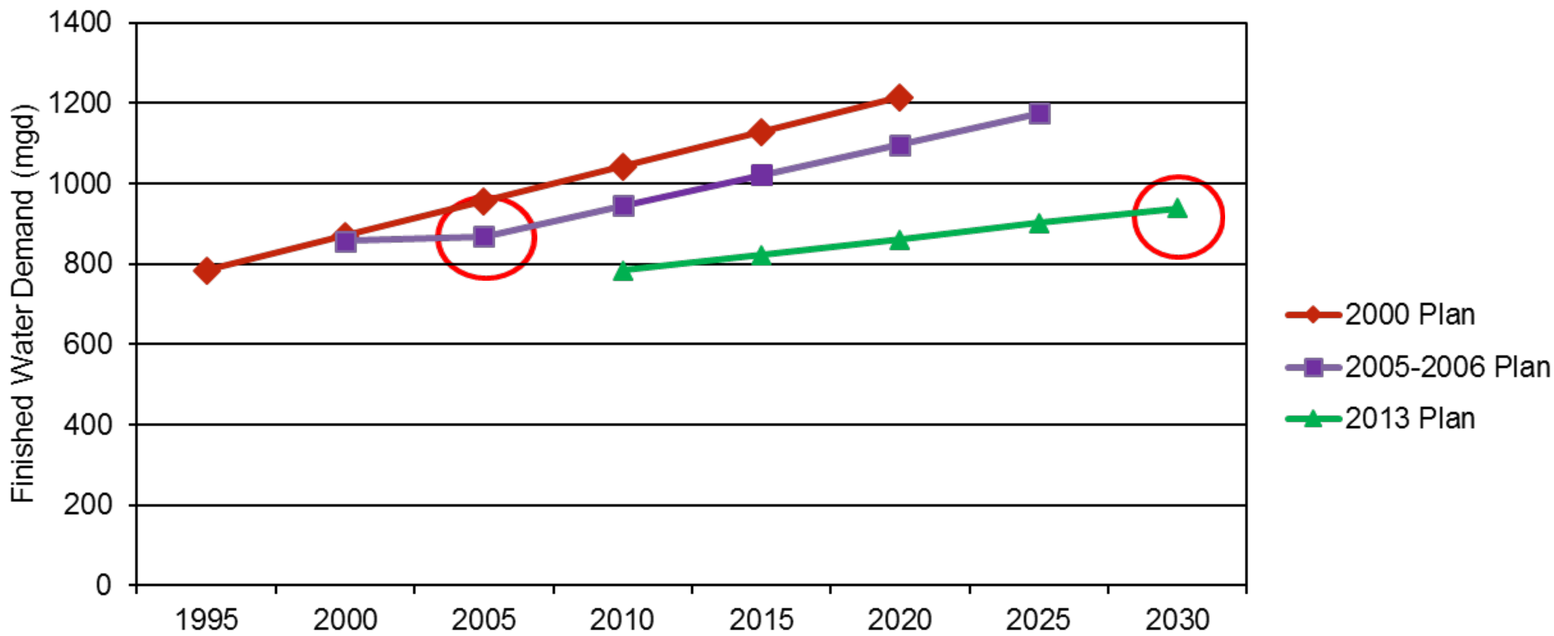
    12% increase



2010 & 2030 Percentage of Use by Water Use Category (2013 Plan)



History of Public Water Supply Demand Projections (Finished Water)



Plan Year	1995	2000	2005	2010	2015	2020	2025	2030
2000 Plan	784	870	956	1,042	1,128	1,215		
2005 Plan		857	869	945	1,021	1,097	1,175	
2013 Plan				784	822	860	901	938

Water Source Options

Aquifer Storage & Recovery*

Reclaimed Water*

Fresh Groundwater

Water Source Options

Reservoirs*

Saline Groundwater*

Surface Water

Conservation*

Seawater*

* Alternative water source

Conservation

- Year-round rule savings
- All water sources should be used efficiently by all users

The cheapest gallon of water is the gallon we don't use.



Water Year (Water Supply Plan)	1995 (2000 Plan)	2000 (2006 Plan)	2005 (2006 Plan)	2010 (2013 Plan)
LEC Planning Area – PWS (gallons per capita per day)	184	176	163	142

Environmental Water Needs





- Implementation of CERP and other projects
- Regulatory protection of water resources
  - Water use permitting program
  - Minimum flows and levels*
  - Water reservations
  - Restricted allocation area rules
  - Water shortage criteria

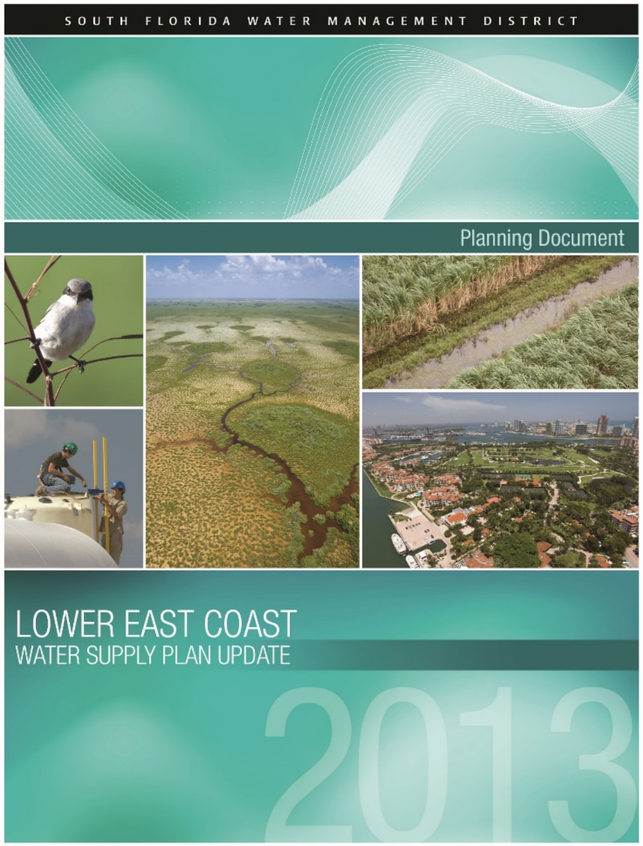
*Recovery and prevention strategies rely on CERP implementation.

Future Direction (2013 Excerpts)

- Continue aquifer monitoring program
- Construct CERP and related projects
- Promote local storage projects
- Continue to evaluate the feasibility of the C-51 Reservoir Project
- Promote water reuse and conservation measures
- Implement projects to comply with the 2008 Ocean Outfall Act
- Identify the potential impact of sea level rise on utilities and other users
- Complete East Coast Floridan Model
- Coordinate with local governments and utilities on water supply related elements

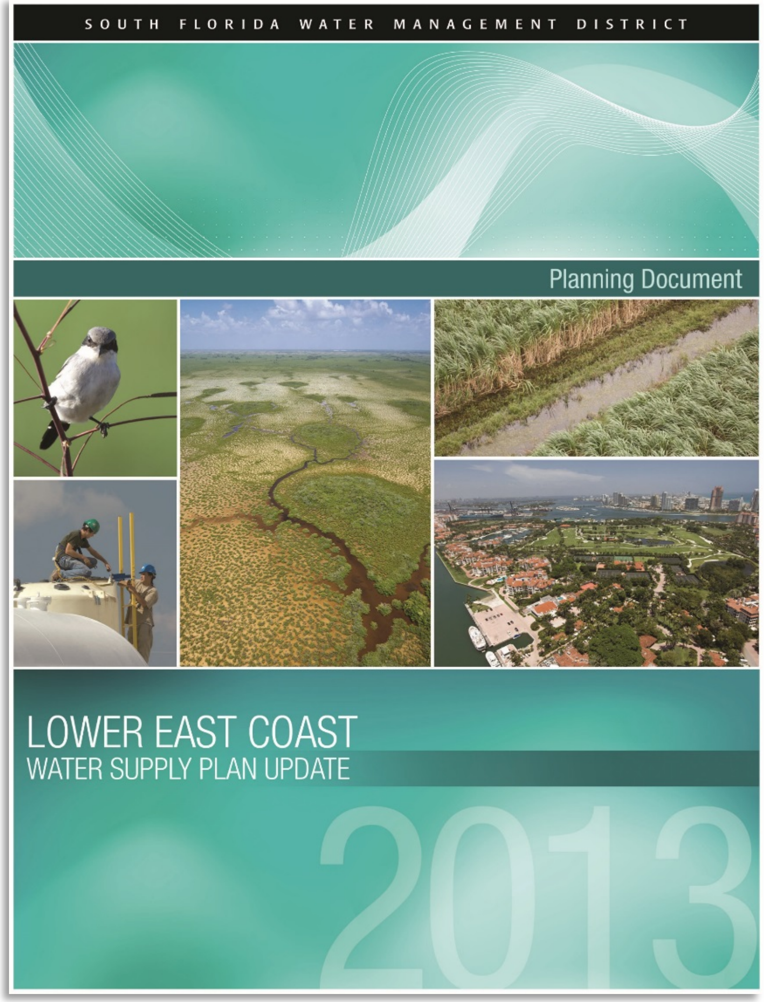


2013 Conclusions



- Meeting the 1-in-10 level of service for all water users and achieving all MFLs is not likely within the next 5 years
- CERP implementation and other projects will be necessary to meet environmental needs
- Public water supply utilities can meet 2030 demands by implementing only 2 additional water supply projects
- Additional water from Lake Okeechobee from operational flexibility within the existing LORS 2008 schedule, or a revised regulation schedule subsequent to HHD repairs could return the lake to an MFL prevention strategy, enhancing existing permitted users' level of service and support environmental needs

Bottom Line



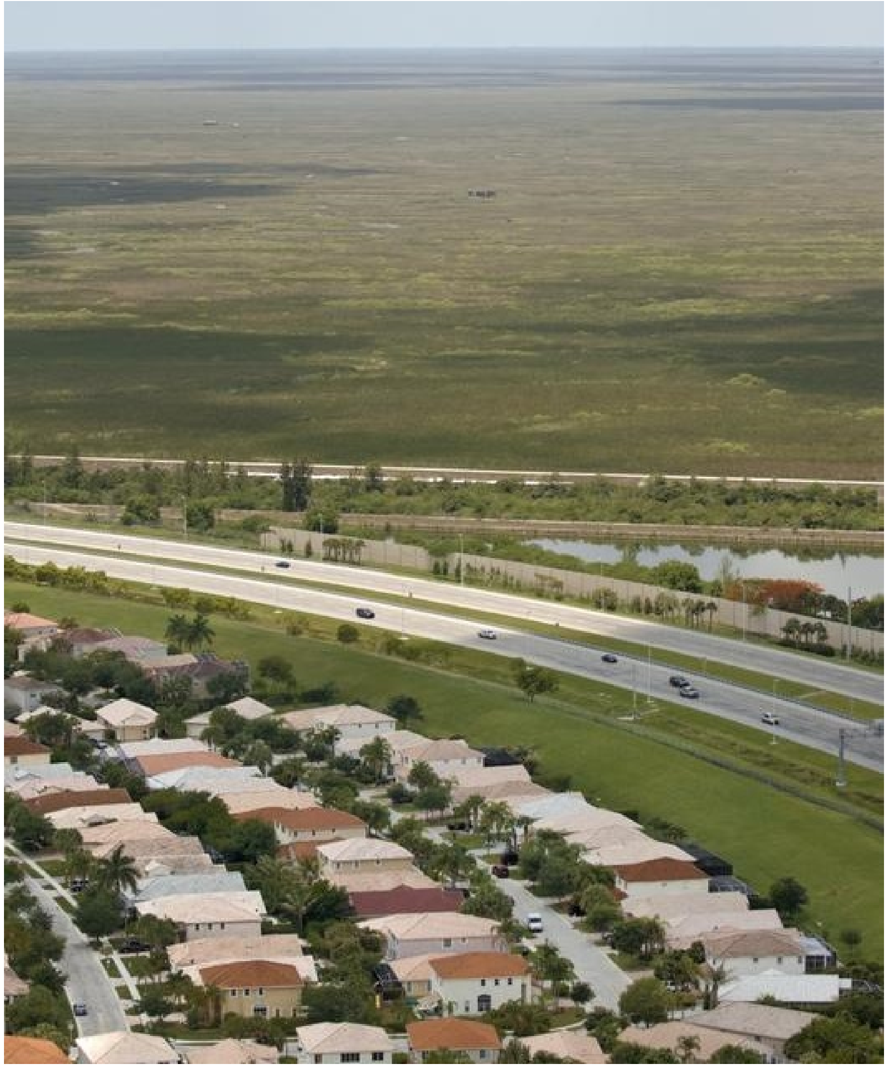
The future water demands of the region can be met through the 2030 planning horizon with appropriate management, conservation, and implementation of projects in this plan.

Questions

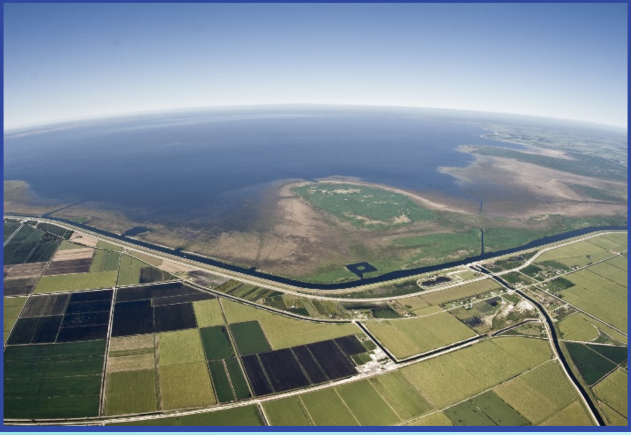


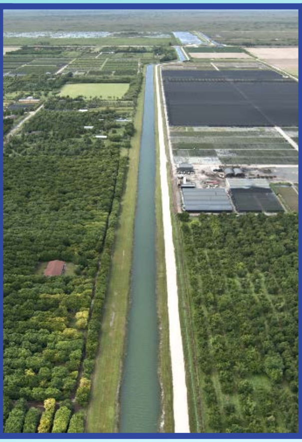

RECYCLED
WATER
IRRIGATION FOR THIS FACILITY
PROVIDED BY RECLAIMED
WASTEWATER EFFLUENT



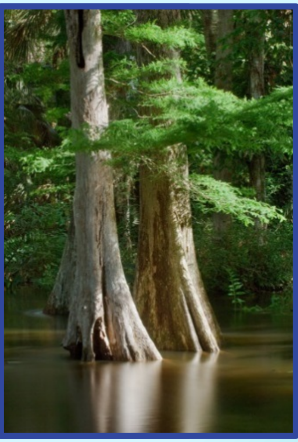


2018 Lower East Coast Water Supply Plan Update









Tom Colios

Water Supply Planning – Section Leader

2018 LEC Stakeholder Kick-off Meeting

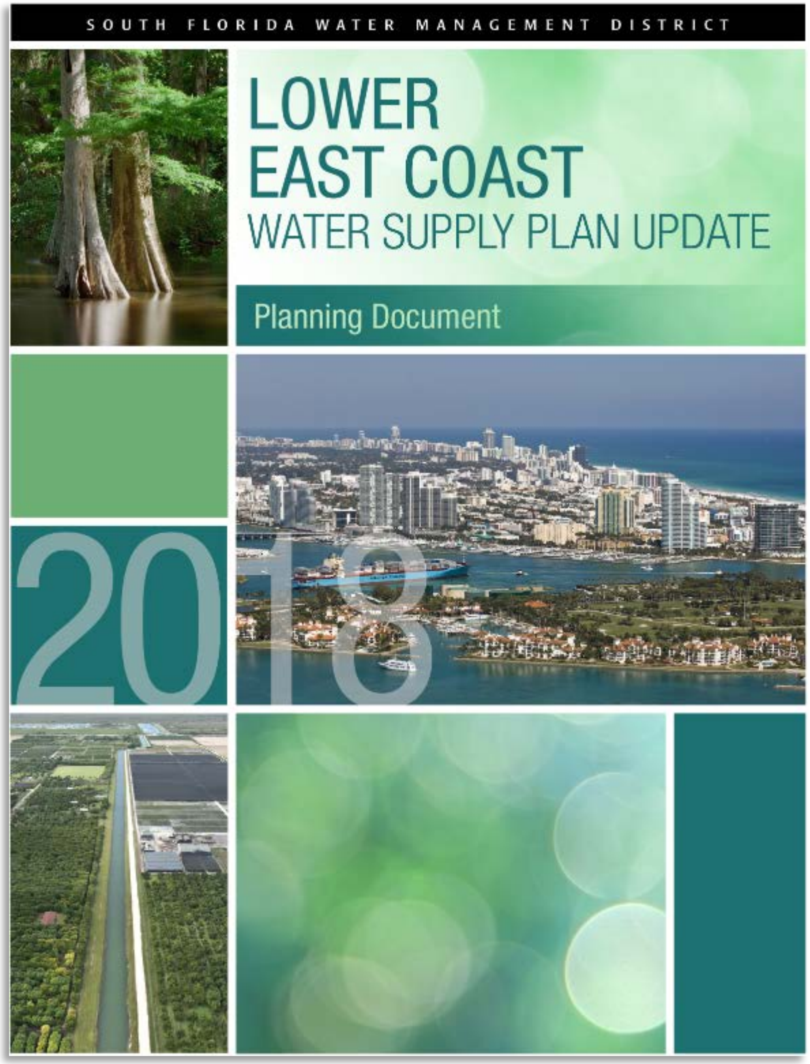
November 30, 2017

Statutory Goal of Water Supply Plans (Section 373.709, F.S.)

To identify sufficient water supply sources and future projects to meet existing and future reasonable-beneficial uses during 1-in-10 year drought conditions through ***2040*** *while sustaining water resources and related natural systems.*



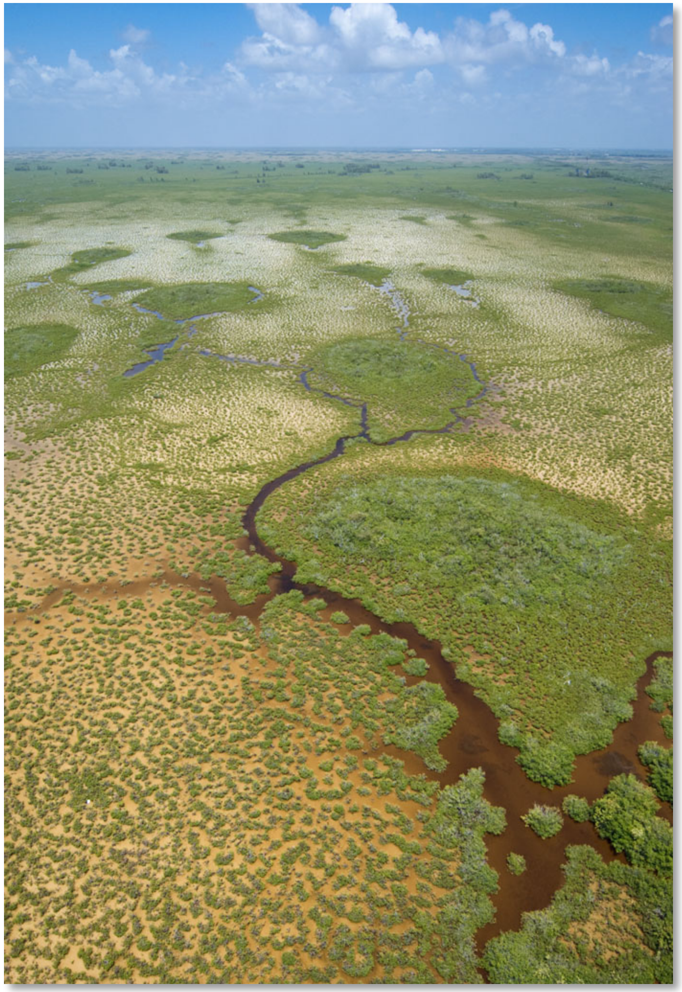
Objectives of this Plan Update



1) Water Supply
2) Water Conservation and Alternative Source Development
3) Natural Systems
4) Linkage with Local Governments
5) Compatibility and Linkage with Other Efforts

Objectives of this Plan Update (cont.)

1) **Water Supply:** Identify options to meet 2040 demands during 1-in-10 year drought
2) **Water Conservation/Alternative Sources:** Increase efficiency and develop alternative sources
3) **Natural Systems:** Protect and enhance the environment
4) **Linkage with Local Governments:** Support local government comprehensive plans



Objectives of this Plan Update (cont.)

5) Compatibility and Linkage with Other Efforts to Achieve Integration with:

- CERP and other environmental restoration projects
- Modifications to operating schedules of Regional System, including Lake Okeechobee
- Water Use Permitting process, MFLs and water reservations
- Other regional and local water resource planning efforts

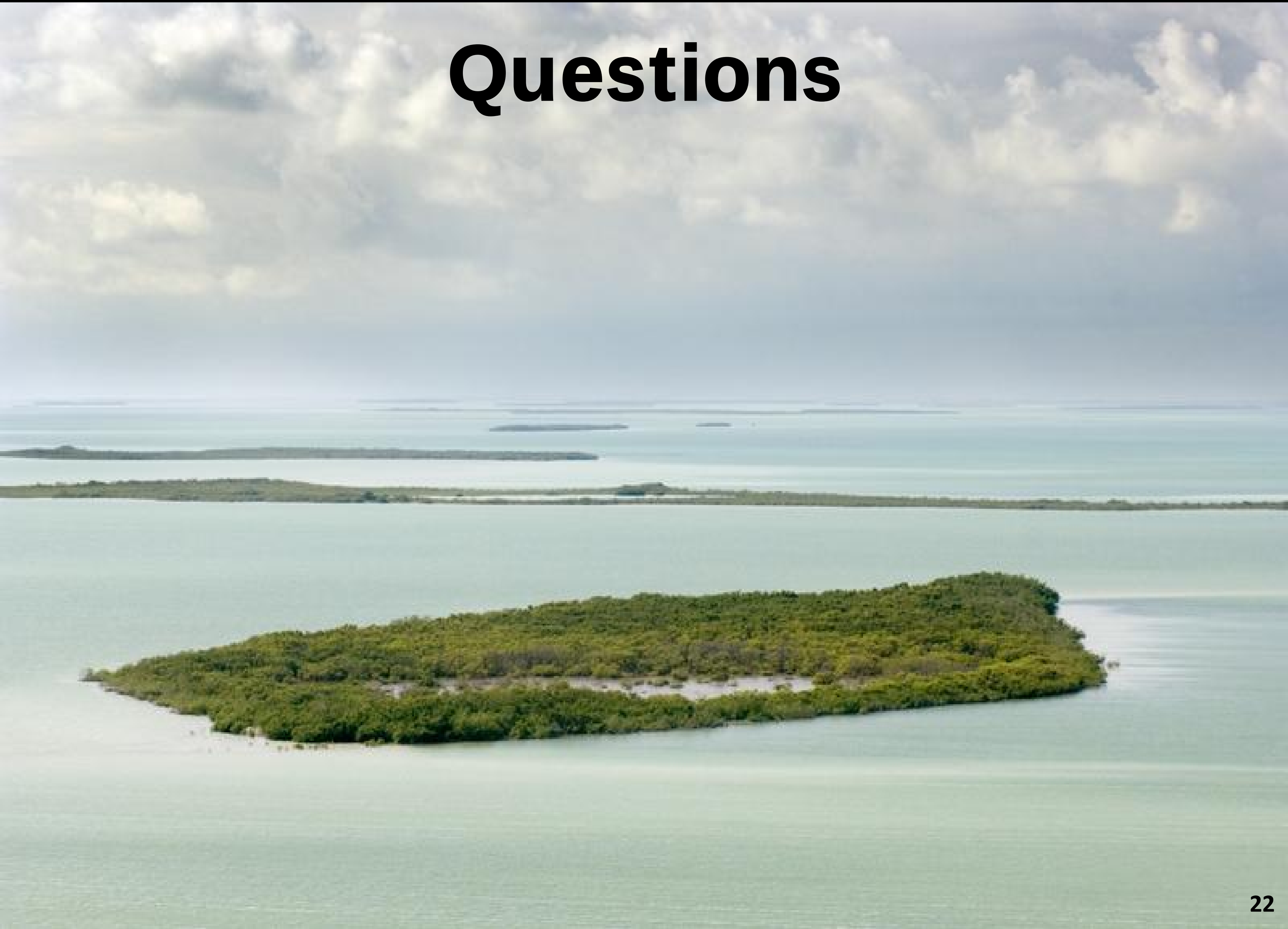


Regional and Local Planning Linkage (Chapter 163, F.S.)

- After the District updates the water supply plan:
  - All local governments must amend their comprehensive plan to incorporate a water supply facilities work plan within 18 months of the water supply plan update
  - Utilities identify the projects to be developed
  - Utility annual progress reports – can use WaSUP database



Questions



Progress Since 2013 Lower East Coast Update



Karin Smith, P.G.

Water Supply Planning – Plan Manager

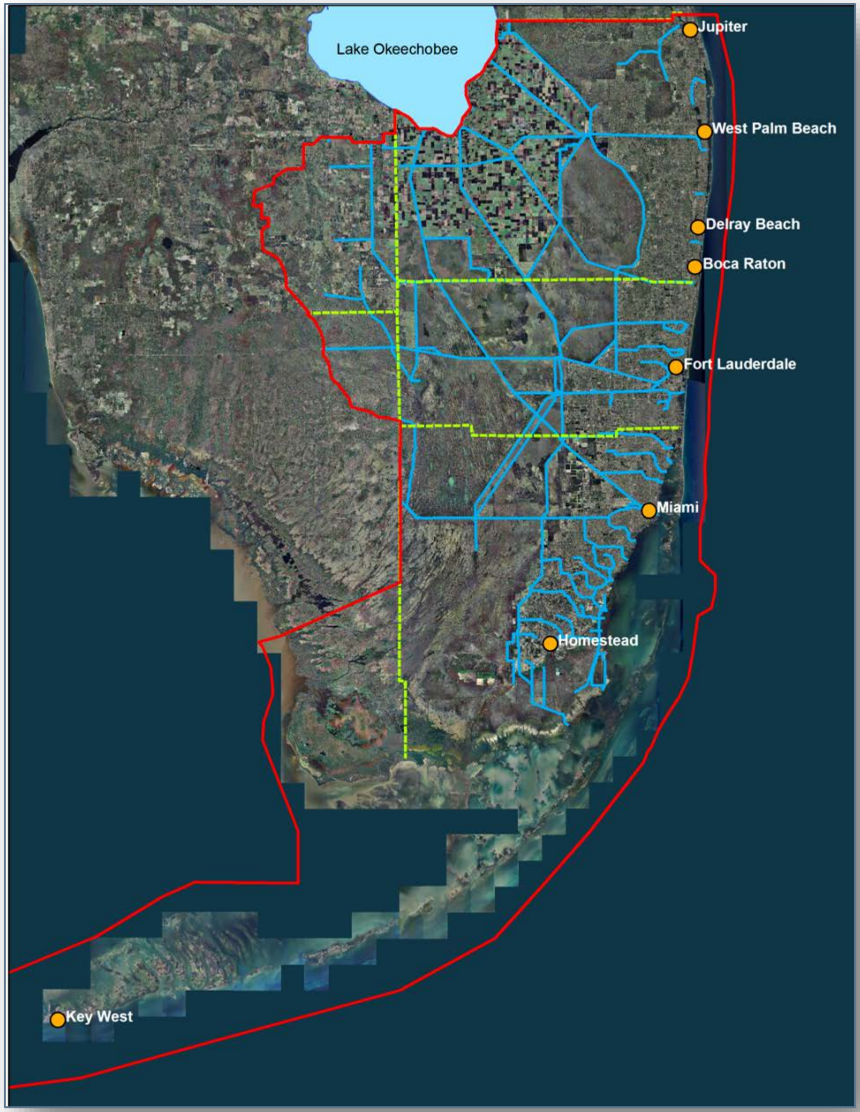
2018 LEC Stakeholder Kick-off Meeting

November 30, 2017

Progress Since 2013 LEC Plan Update

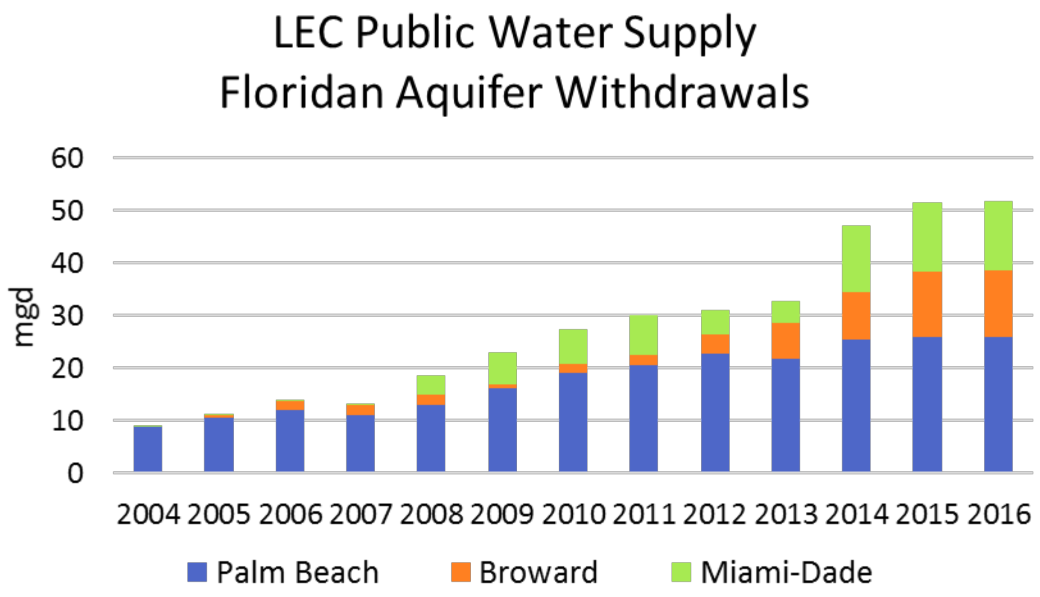
Summary

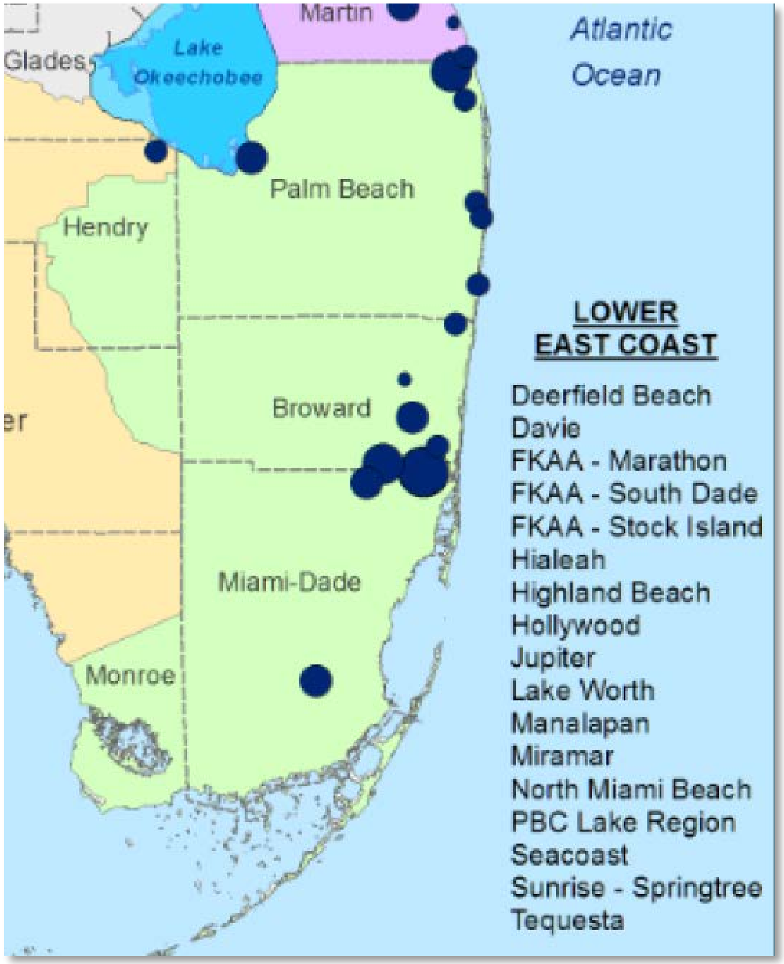
- Water Supply Projects
- Water Storage
- Resource Protection
- Restoration Efforts
- Modeling
- Research
- Economy



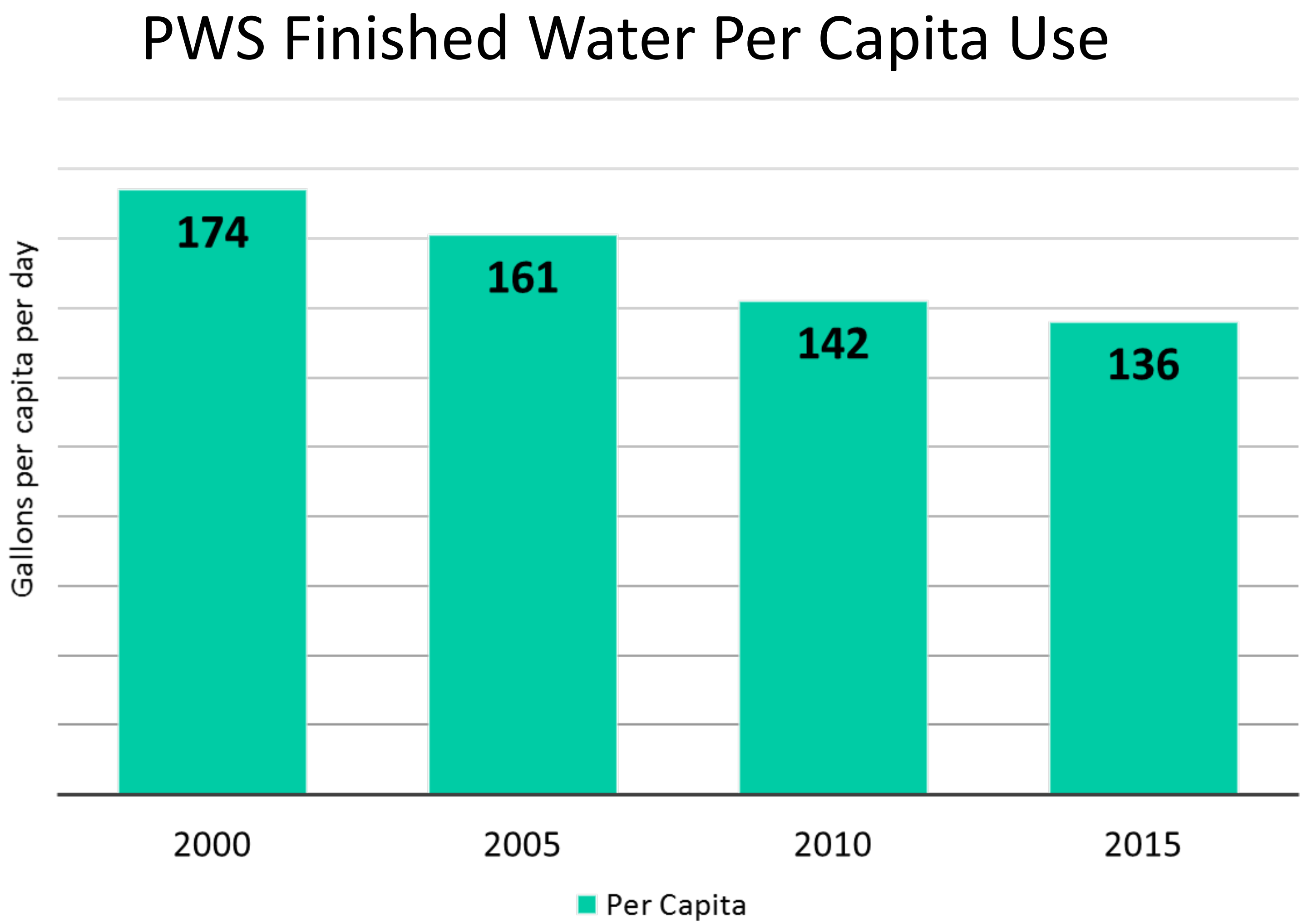
Floridan Aquifer Use

- 15 treatment facilities
- 102 mgd treatment capacity
- Reverse osmosis treatment





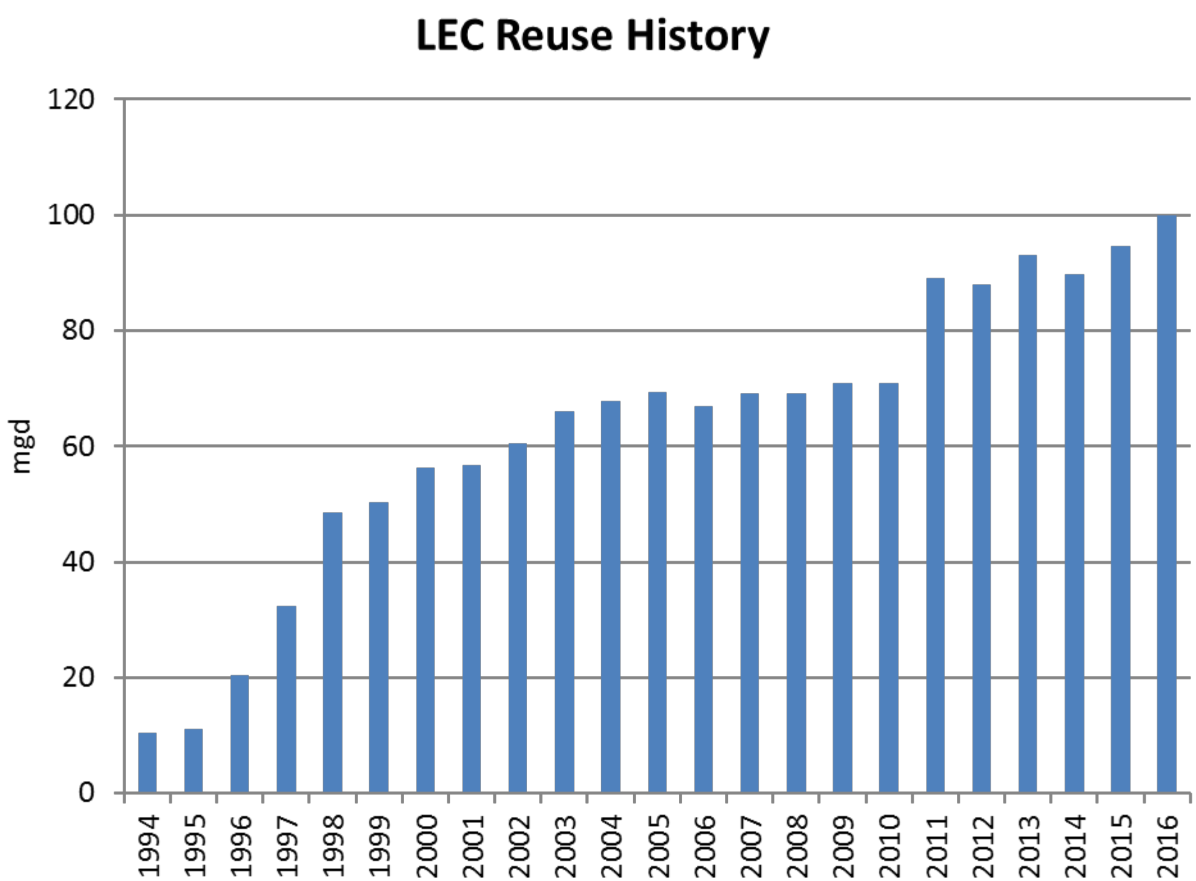
Conservation

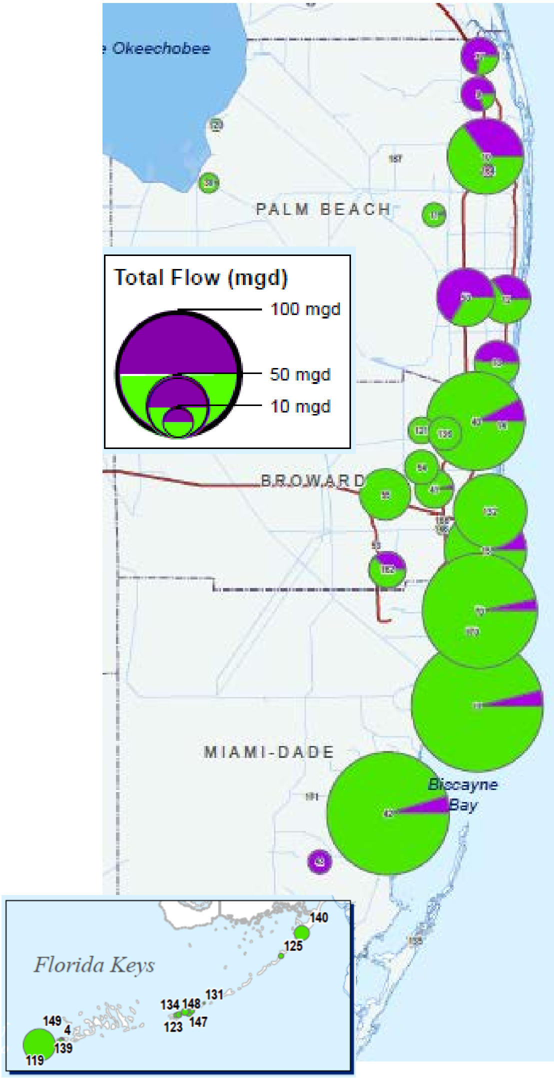


The cheapest gallon of water is the gallon we don't use

Reuse

- Currently, about 100 mgd reused
- 15% reuse rate





Water Supply Project Support





- AWS Funding - $1.6 M
  - Delray Beach reclaimed system expansion
  - Coconut Creek reclaimed lines extension
  - Sunrise Reclamation Facility and water main extension
  - Pompano reclaimed system expansion
- $367,000 in water conservation grants awarded
- C-51 Reservoir agreement

Water Storage

- ASR Regional Study - 2015
- STAs and FEBs
  - L-8 FEB - completed
  - A-1 FEB - completed
  - STA-1W expansion – under construction
- Reservoirs
  - C-43 – under construction
  - C-44 – under construction
  - A-2 – planning phase
- Other
  - Caulkins Water Farm - completed
  - Site 1 Impoundment (Fran Reich) – Phase 1 completed
- Lake Okeechobee dike repairs





Resource Protection

Regulations

- CUPCon
  - Permit thresholds
  - PWS conservation
  - Compliance
  - Forms
- Water Resource Implementation Rule [62-40, F.S.]
  - Reclaimed water offsets/credits
  - Conservation incentives

MFLs and Reservations

- MFL Re-evaluations
  - Caloosahatchee
  - Florida Bay
- Reservations
  - C-43 Reservoir – 2014
  - Kissimmee Basin – in development



Restoration

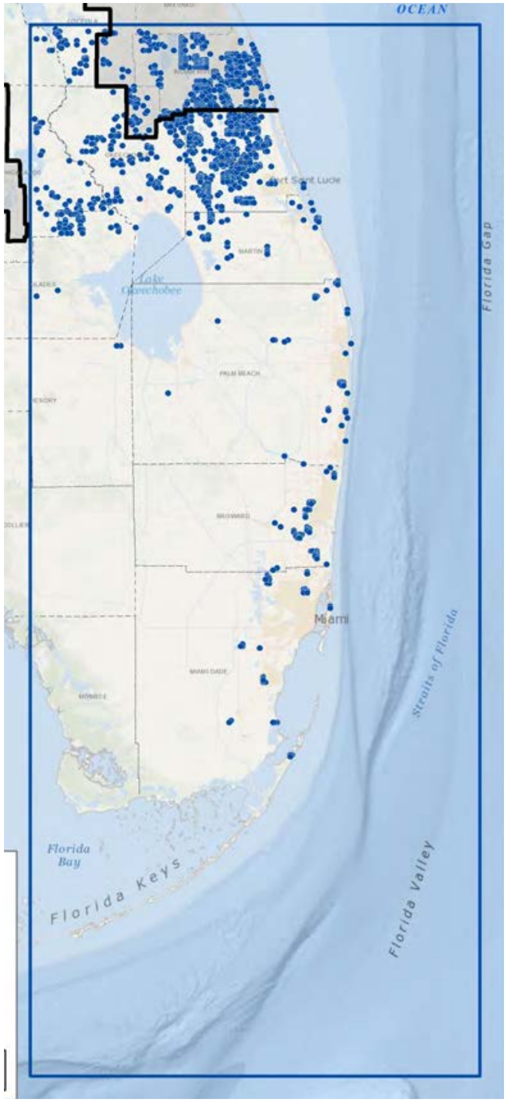


- Modified deliveries to Everglades National Park
  - Operational testing
  - Tamiami Trail bridges

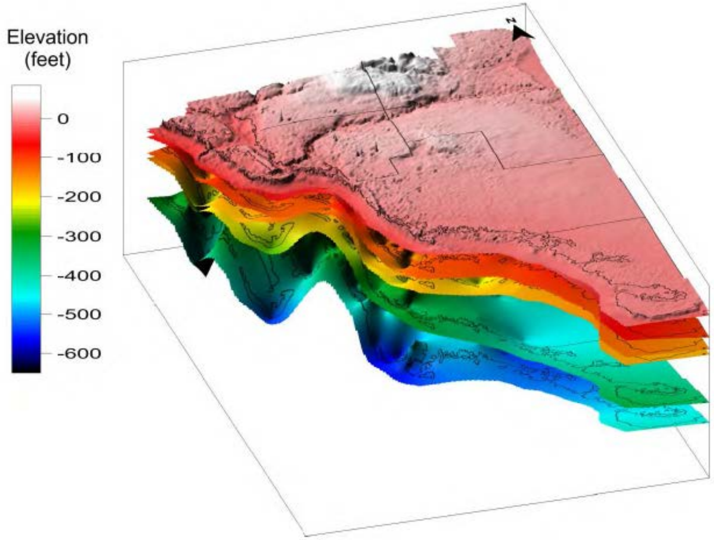


- CERP Projects
  - CEPP authorized - 2016
  - Biscayne Bay Coastal Wetlands
  - C-111 modifications

Modeling

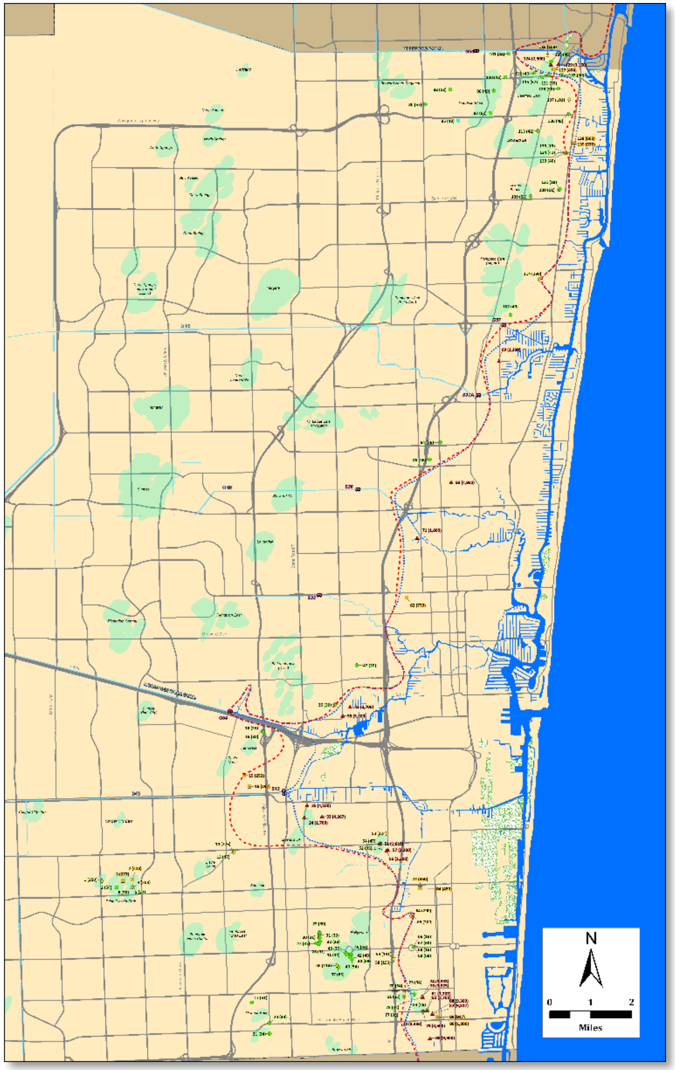


- East Coast Floridan Model
- Lower West Coast Surficial and Intermediate Aquifer Model
  - LWC Hydrogeologic Unit Mapping Update – 2015
- USGS Models
  - Broward SIR 2016-5022
  - Miami-Dade

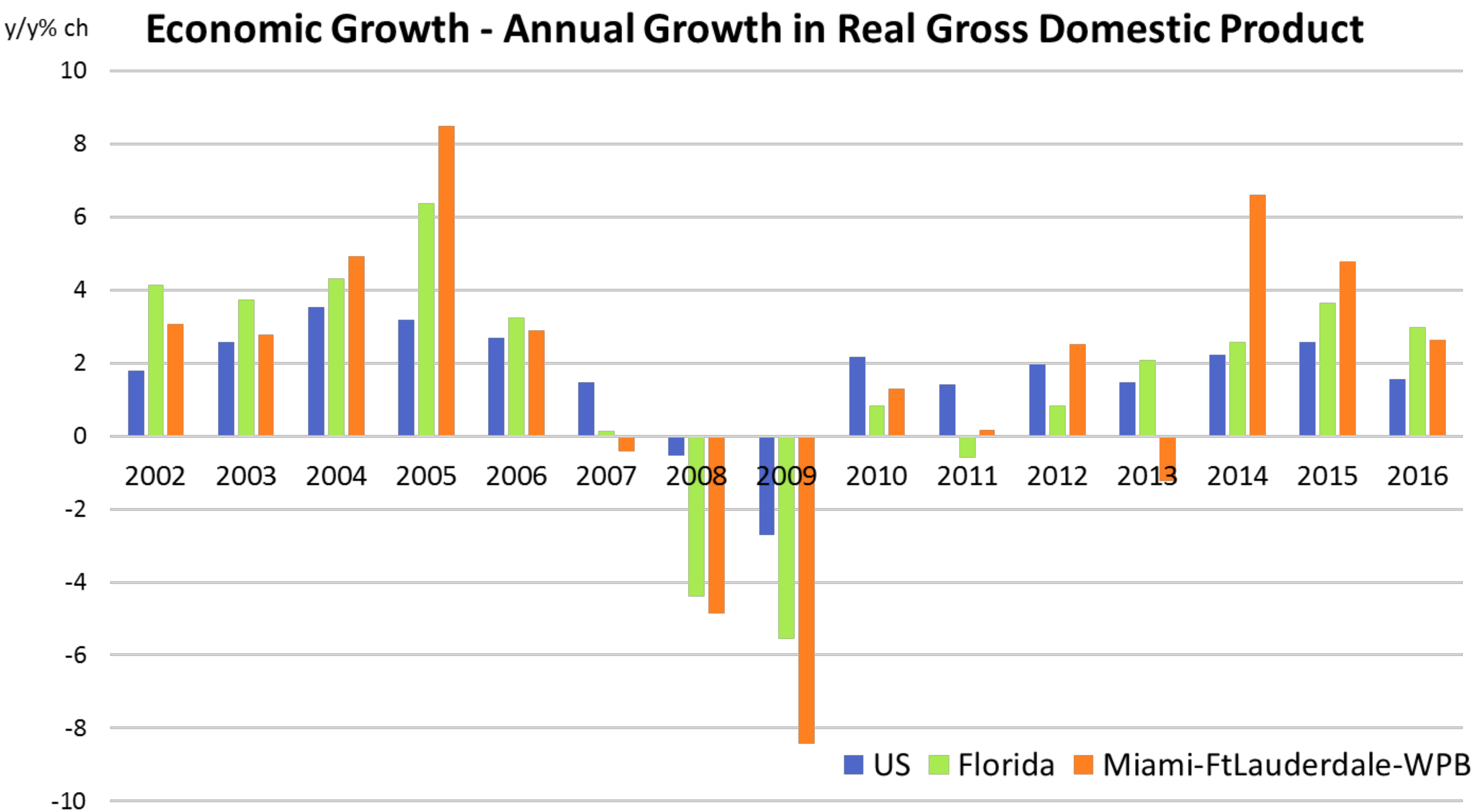


Research

- Saltwater Interface Maps:
  - Palm Beach & Broward updated in 2014
  - Miami-Dade updated annually
- FDEP's *Report on Expansion of Beneficial Use of Reclaimed Water, Stormwater, and Excess Surface Water* (2014)
- Regional Climate Action Plan 2.0 (2017)



Economic Growth



Source: US Department of Commerce – Bureau of Economic Analysis

Discussion





Lake Okeechobee



Big Cypress National Preserve



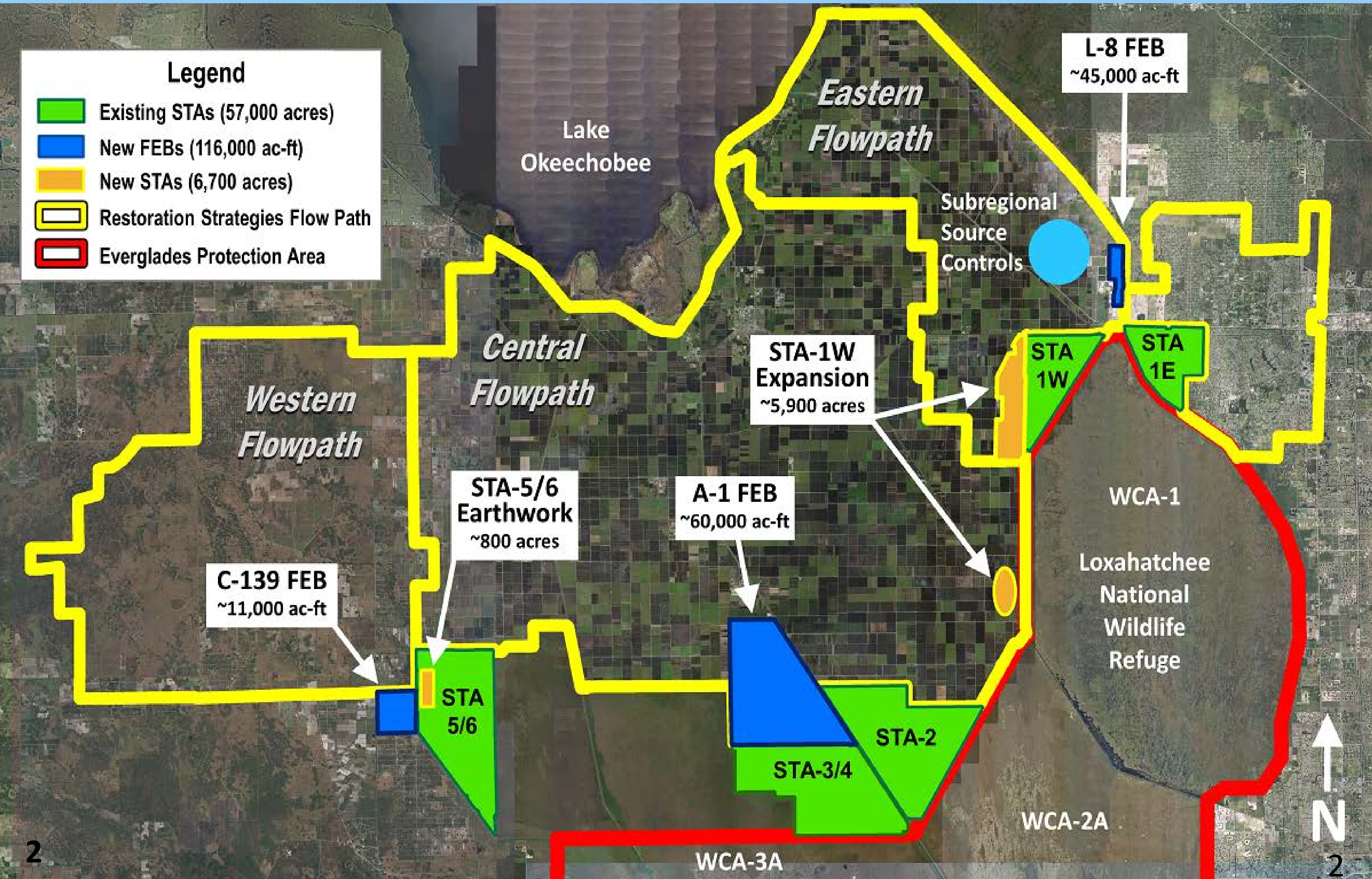
Loxahatchee River

Everglades Restoration Progress

Lower East Coast Water Supply Plan Meeting

Jennifer Leeds, Section Administrator
South Florida Water Management District
November 30, 2017

Project Alternatives



Restoration Strategies: Key Projects

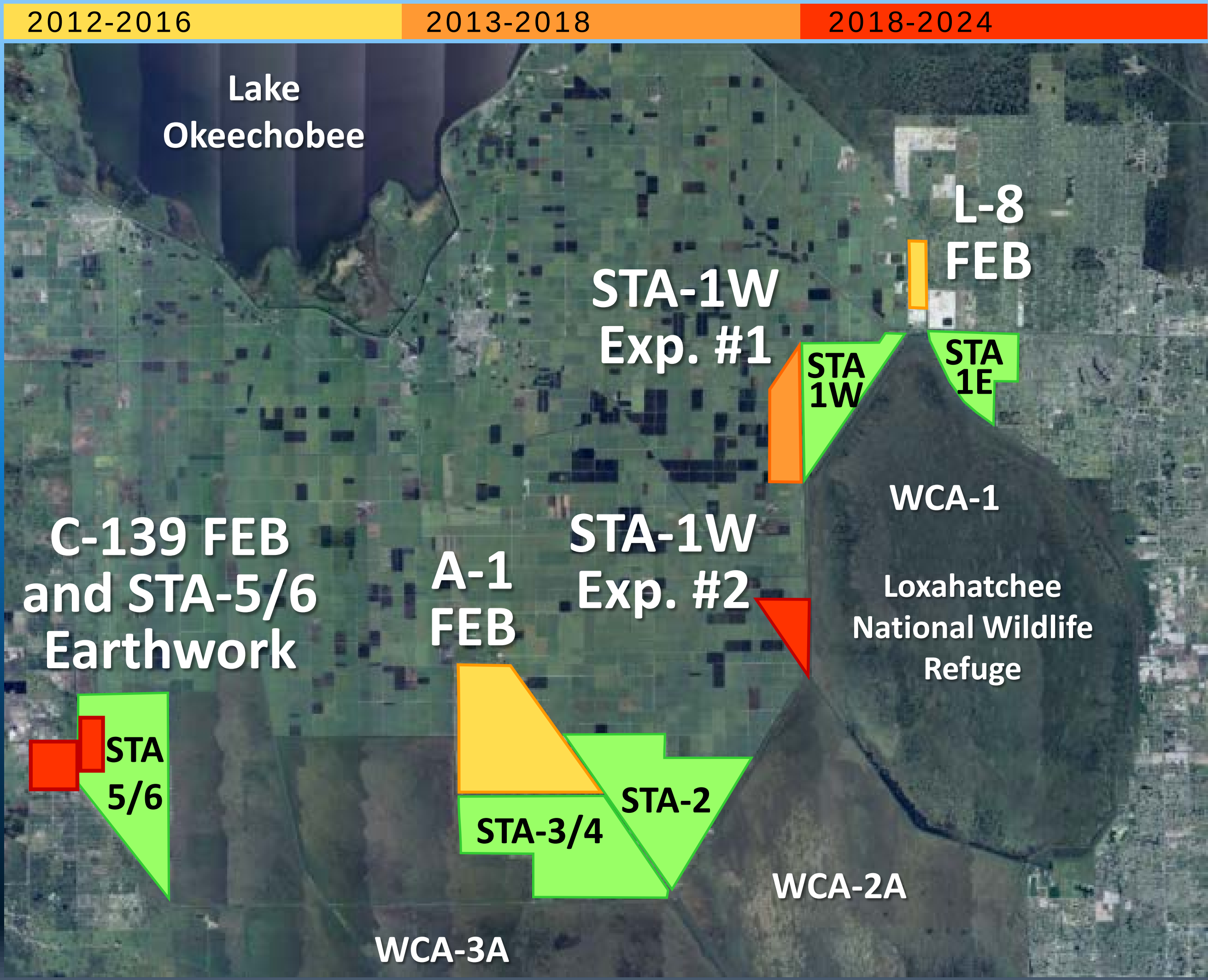
Schedule

2012
- 57,000 ac of STA

2012-2016
- L-8 FEB (45,000 ac-ft)
- A-1 FEB (60,000 ac-ft)

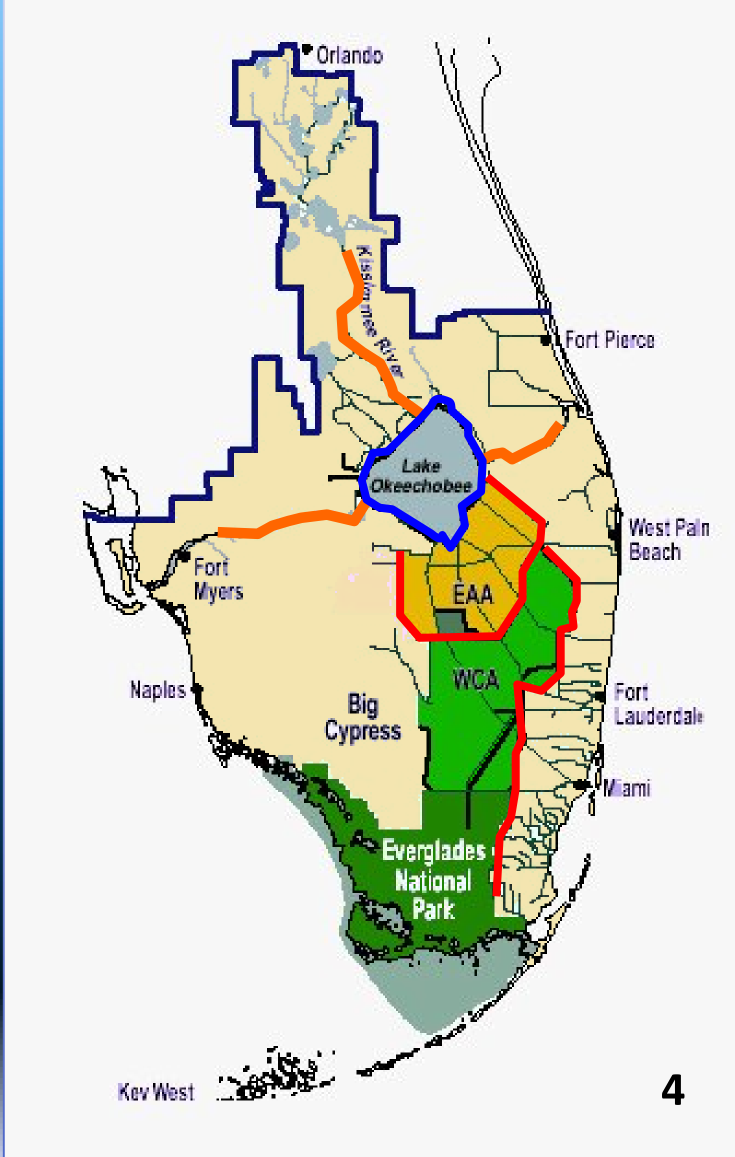
2013-2018
- STA (4,700 ac)

2018-2024
- STA (1,800 ac)
- C-139 FEB (11,000 ac-ft)
- STA Earthwork (800 ac)

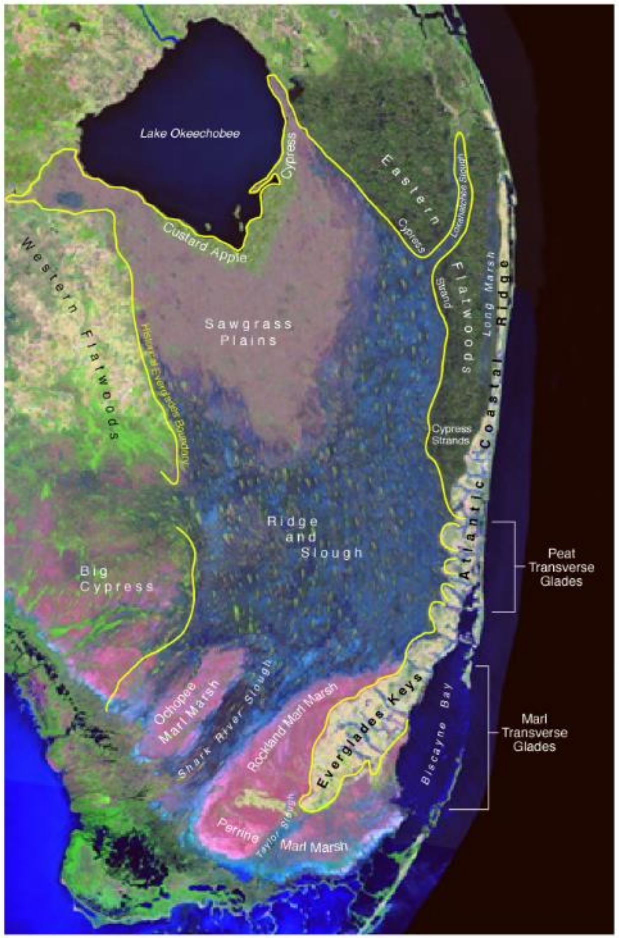


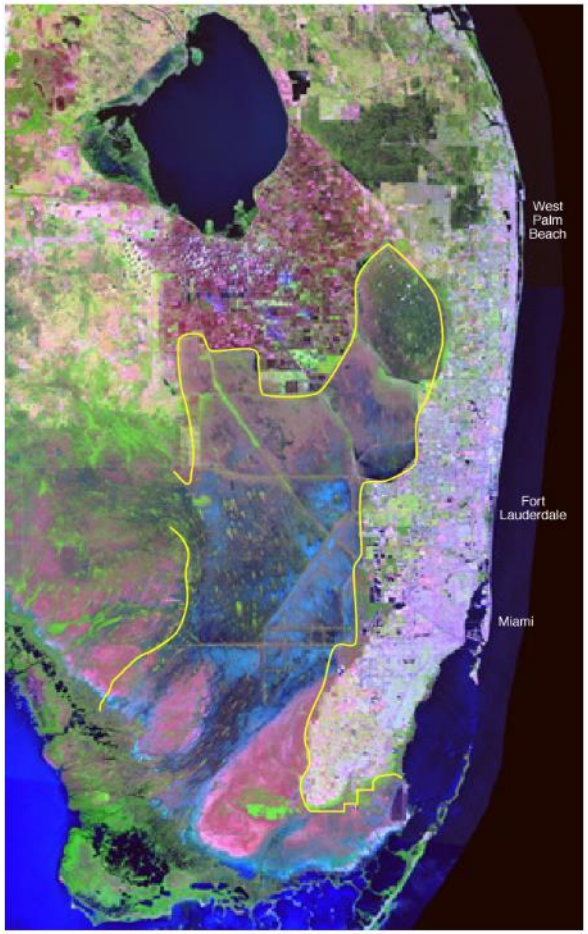
Major Features of the C&SF Project

- River Channelization
- Herbert Hoover Dike
- Water Conservation Areas
- Protective Levees
  - Everglades Agricultural Area
  - Lower East Coast
- Drainage Network
  - Regional Canals
  - Salinity Structures
- Today's expanded system
  - 1,600 miles of canals, 1,000 miles of levees/berms, 500 structures, 700 culverts and 61 pump stations
  - serves 41% of the state's population, or 7.7 million people



Unintended Consequences of C&SF Project



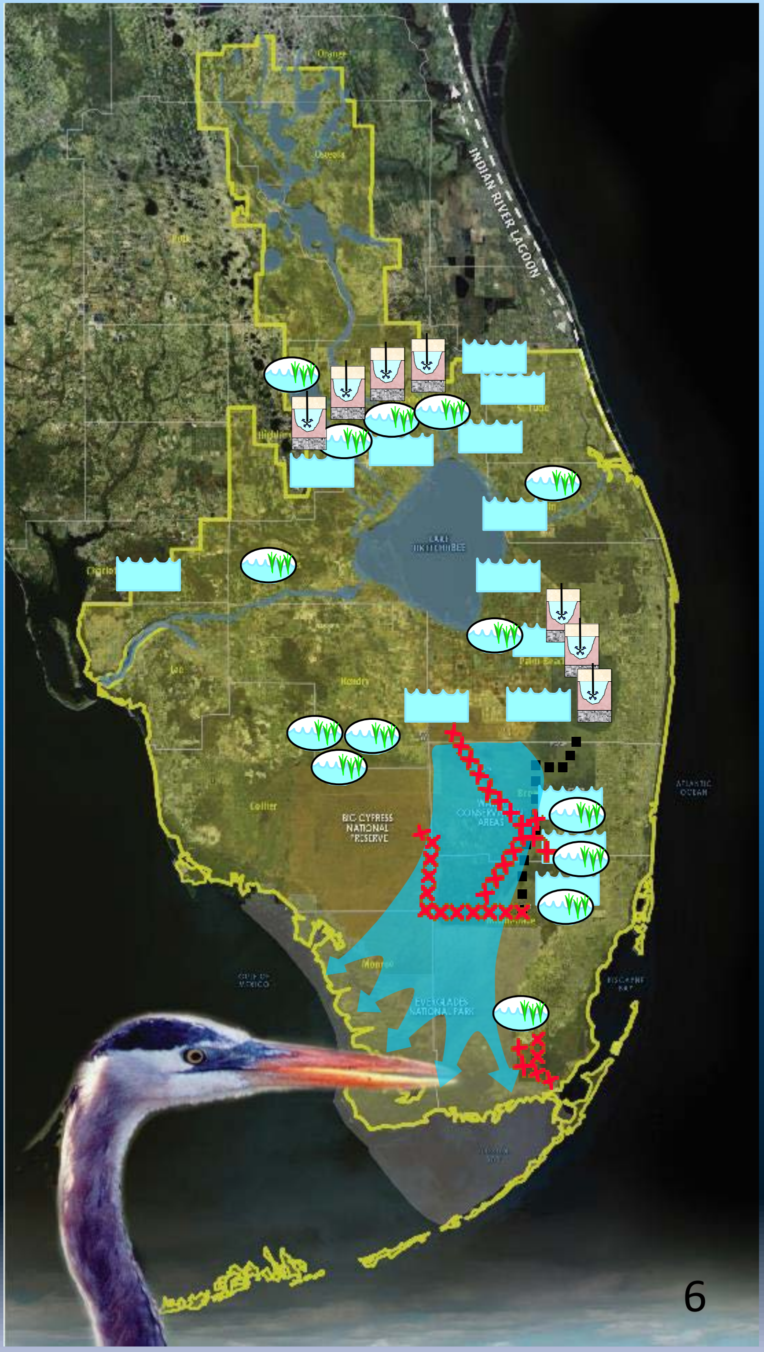


- Declining estuary health
- Wading bird populations in the Everglades have declined by 90%
- 68 Federally-listed threatened and endangered species
- Exotic and invasive plants and animals have altered the ecosystem

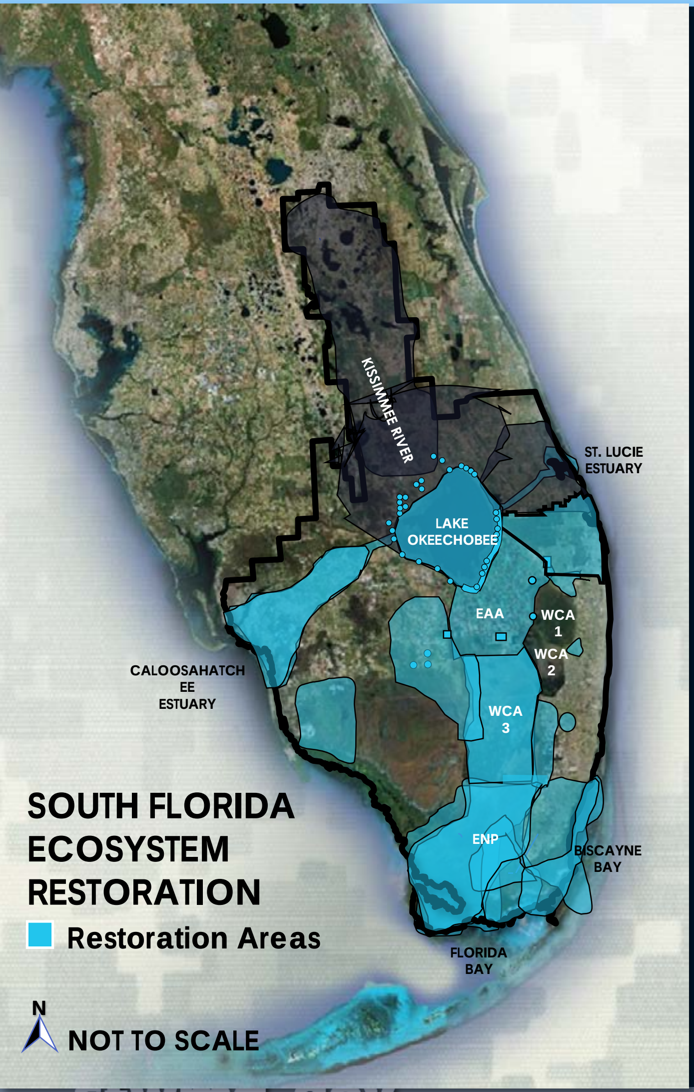
- Disruption in quantity, timing and distribution of water
- Degradation of water quality
- Peat soils in the Everglades have oxidized and caused subsidence

Comprehensive Everglades Restoration Plan (CERP)

- 68 Components
  - Storage Surface ASR
  - STAs for water quality
  - Seepage management ▪▪▪▪
  - Removing barriers to flow ✖✖✖✖✖
  - Revised operations
- 35+ Year Implementation



South Florida Ecosystem Restoration



INTEGRATED DELIVERY SCHEDULE

NON-CERP & FOUNDATION PROJECTS

- Modified Water Deliveries to Everglades National Park
- Kissimmee River Restoration
- C-111 South Dade
- C-51/Storm Water Treatment Area (STA) 1E
- Restoration Strategies
- Tamiami Trail Bridging & Roadway Modifications
- Herbert Hoover Dike (HHD)Rehabilitation
- Seminole Big Cypress Critical Project

CERP GENERATION 1 PROJECTS

- Indian River Lagoon (IRL) – South
- Picayune Strand
- Site 1 Impoundment
- Melaleuca Annex Facility

CERP GENERATION 2 PROJECT

- C - 43 Reservoir
- Broward County Water Preserve Areas (WPA)
- C-111 Spreader Canal Western Project
- Biscayne Bay Coastal Wetlands Phase 1

DECEMBER 2016 AUTHORIZATION

- Central Everglades Planning Project (CEPP)

PLANNING EFFORTS

- Loxahatchee River Watershed Restoration
- Western Everglades Restoration
- Lake Okeechobee Watershed Project
- Everglades Agricultural Area Storage Reservoir

Modified Water Deliveries to Everglades National Park

Purpose:

- Improve the natural water flows to Shark River Slough
- Restore natural hydrologic conditions using timing, location and volume of water
- Four major components
  - 8.5 Square Mile Area (SMA) Flood Mitigation
  - Conveyance and Seepage Control Features
  - Tamiami Trail Modifications
  - Project Implementation Support

Status:

- S-357N under construction to be complete in early 2018
- Developing the Combined Operational Plan (COP)



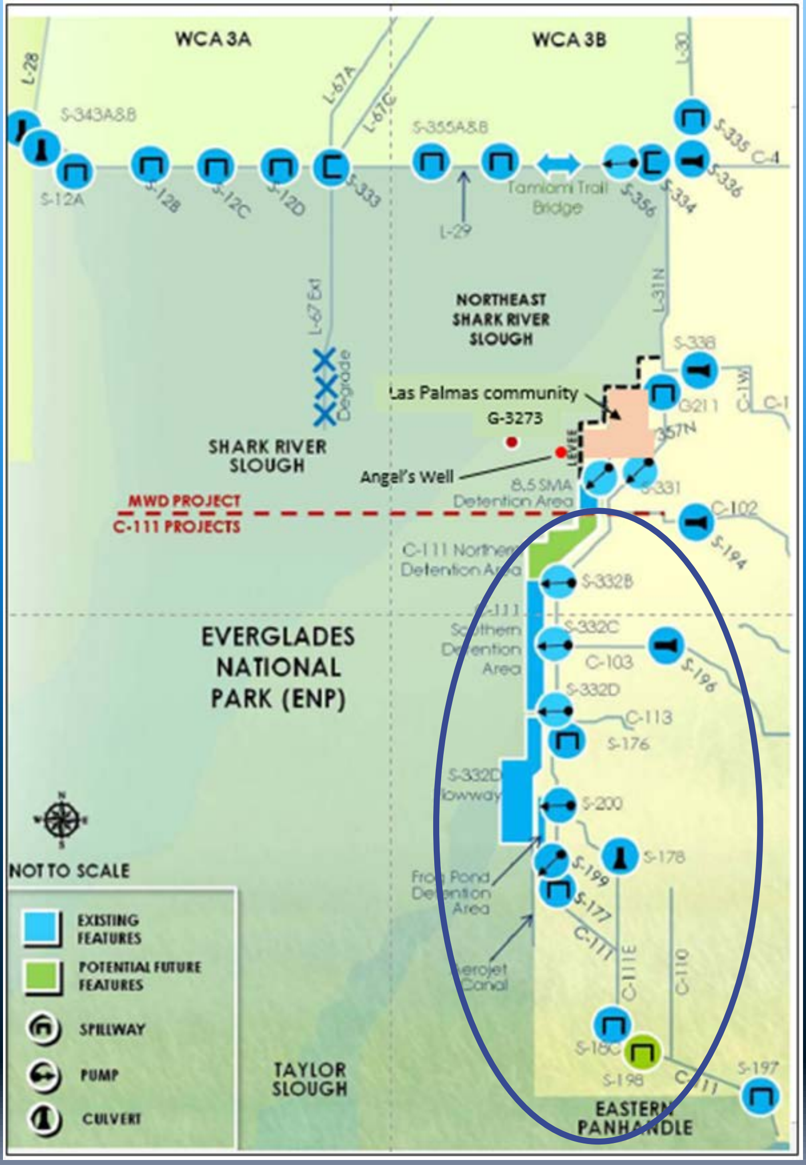
C-111 South Dade Project

Purpose:

- Restore more natural hydrologic conditions in Taylor Slough and the panhandle of Everglades National Park
- Separate Everglades National Park from agricultural lands to the east
- Provide flood control

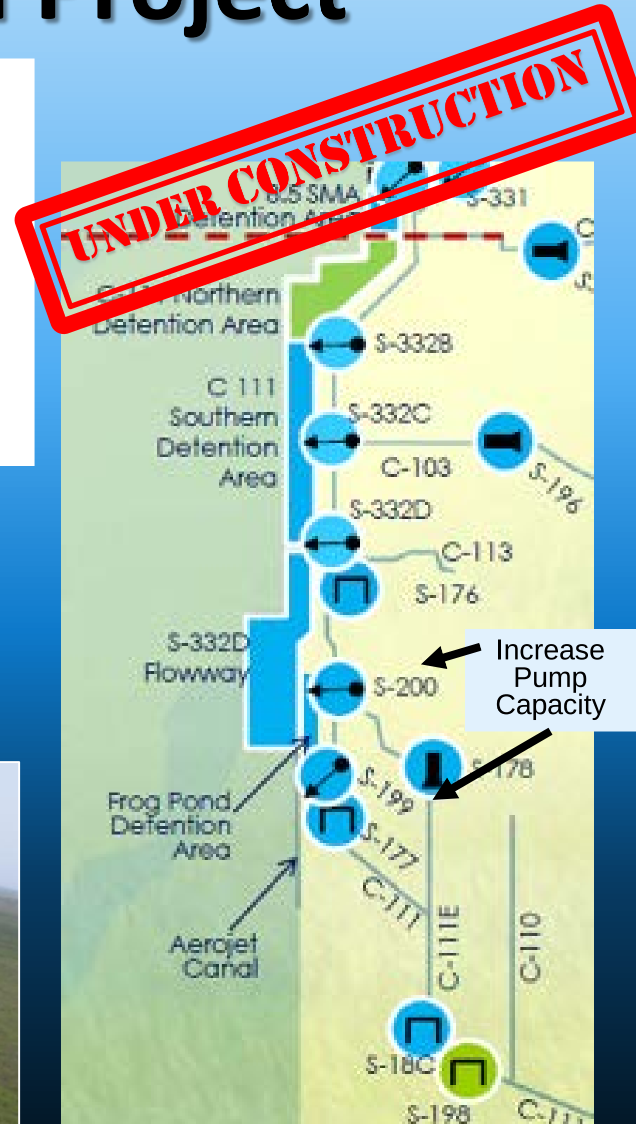
Status:

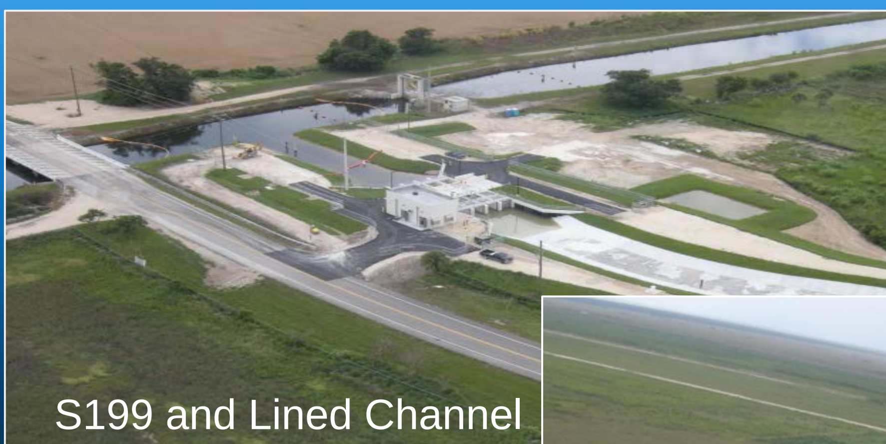
- Majority of construction complete by USACE
- Expected completion in 2018



C-111 Spreader Canal Project

- Lowered operating range and added seasonal variation in March 2016
- Increase capacity of two pump stations by 75 cfs: S-199 and S-200
- Contract executed August 2017
- Substantial completion April 2018



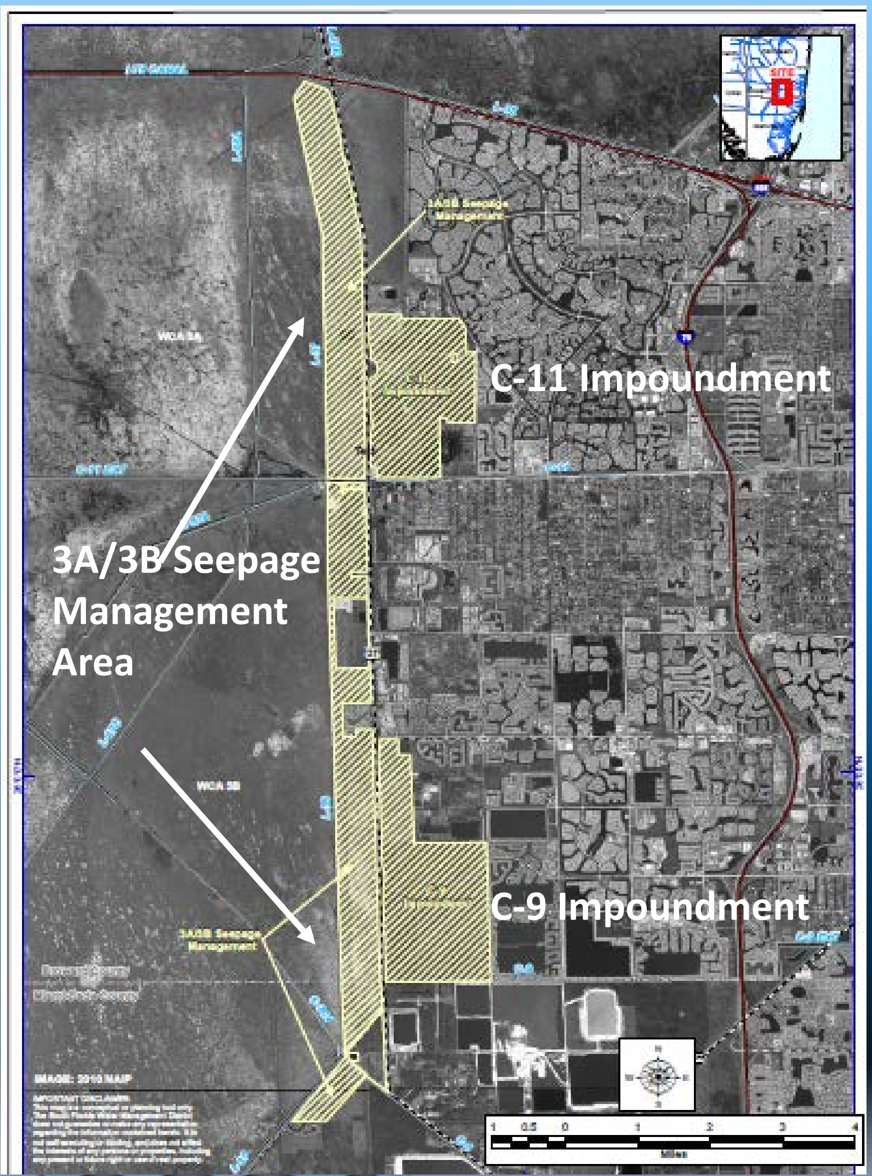


S199 and Lined Channel



S200 and Lined Channel

Broward County Water Preserve Areas



C-11 Impoundment:

- Captures, stores and distributes surface water runoff from the western C-11 Basin that has been discharged into WCA 3A/3B
- Status
  - Mitigation Area A design complete transitioning to construction
  - Intermediate design complete for entire C-11 impoundment

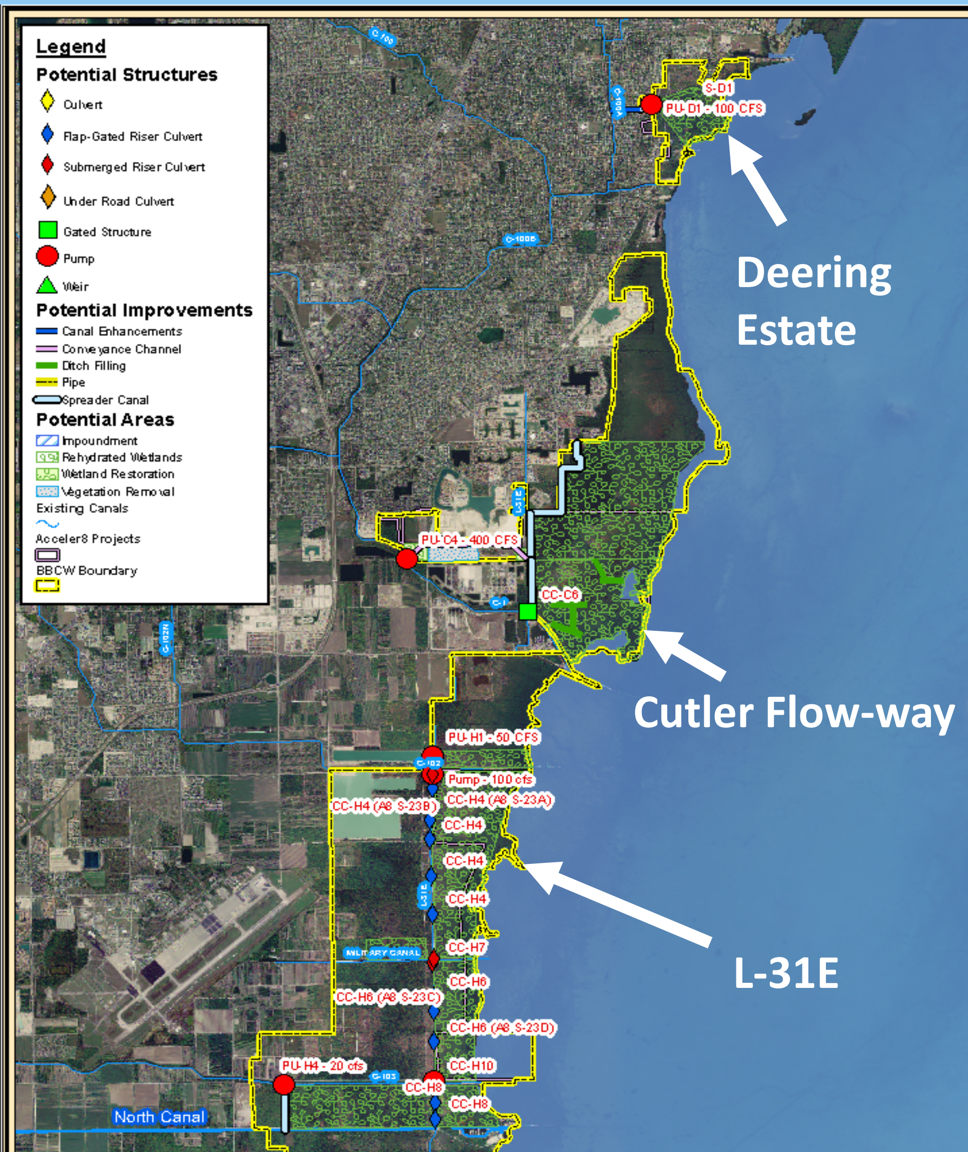
Water Conservation Area (WCA) 3A/3B Seepage Management:

- Reduces seepage loss from Water Conservation Area (WCA) 3A/3B to the C-11 and C-9 basins

C-9 Impoundment:

- Captures, stores and distributes surface water runoff from the western C-9 Basin

Biscayne Bay Coastal Wetlands Phase 1



Purpose:

- Re-establishes productive nursery habitat along shoreline
- Redistributes freshwater flow to improve freshwater and estuarine habitat
- Restores and improve quantity, timing, and distribution of freshwater to the Bay

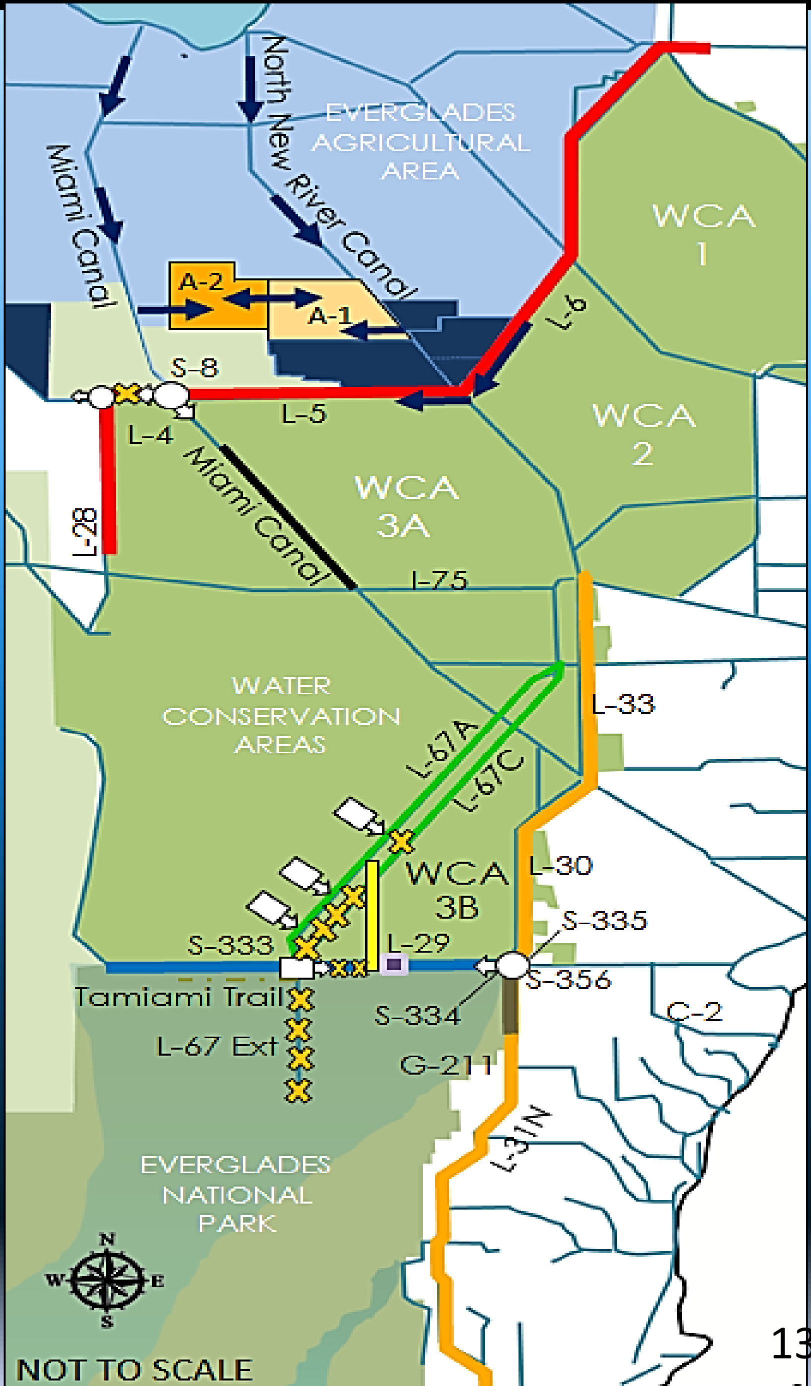
Status:

- Phase I Components
  - Deering Estate Flow-way: Complete
  - Cutler Flow-way: Initiate design in 2019
  - L-31E Flow-way

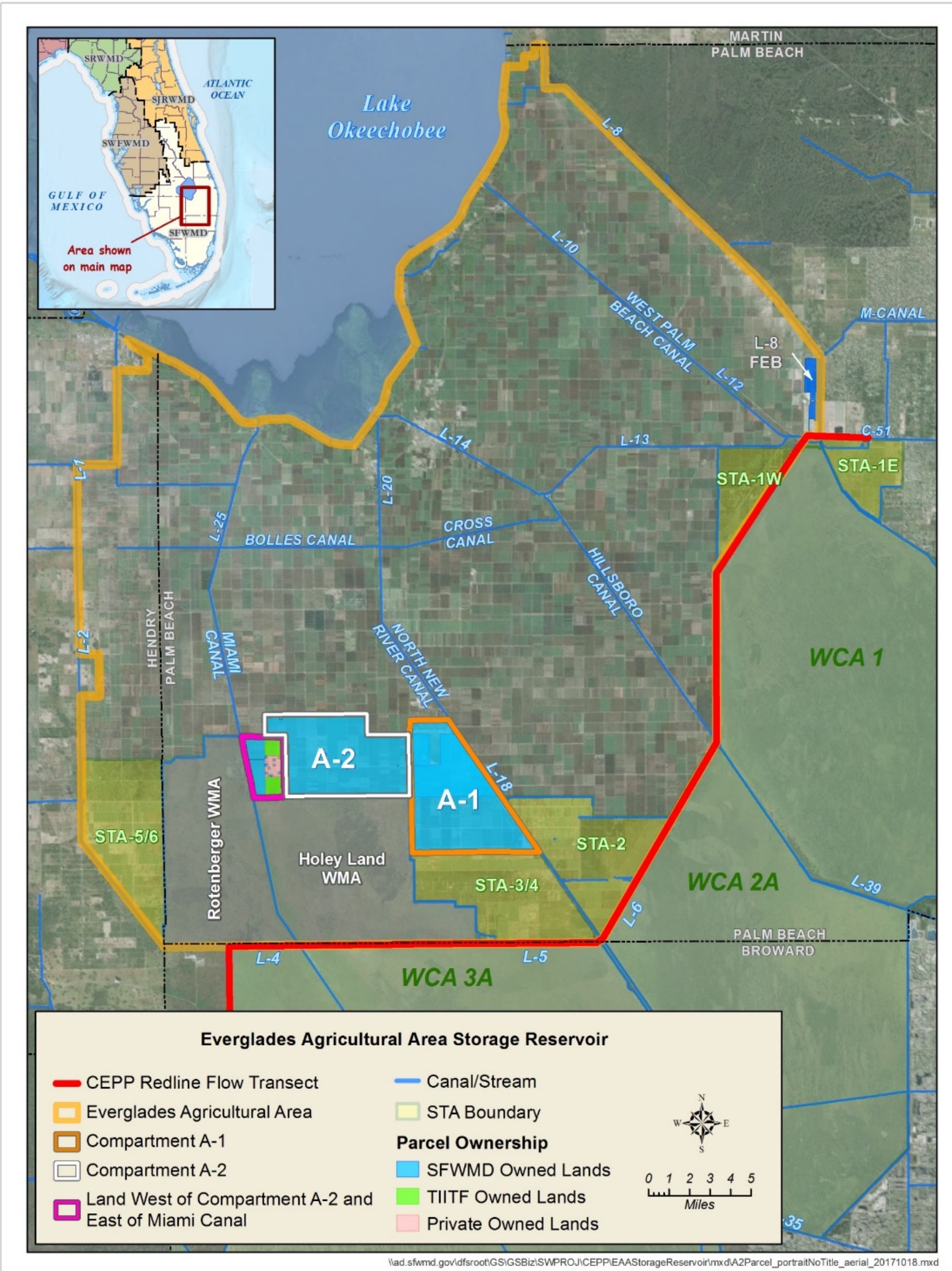
Central Everglades Planning Project

Purpose:

- Increase storage, treatment and conveyance of water south of Lake Okeechobee
  - Sends ~210,000 ac-ft of water south from the Lake
- Remove and/or plug canals and levees within the central Everglades
- Improve hydroperiod and flow through Everglades National Park while protecting urban and agricultural areas to the east from flooding



EAA Storage Reservoir Project



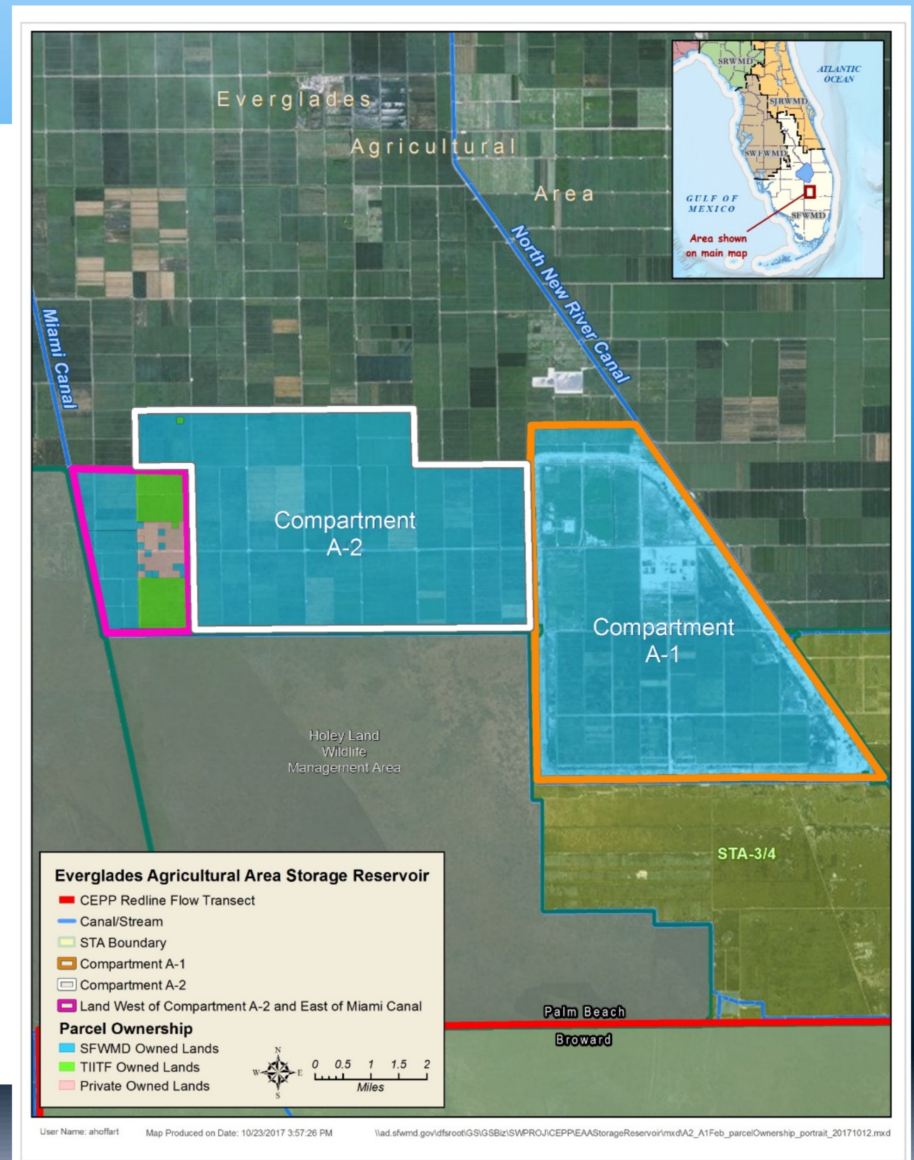
Everglades Agricultural Area Storage Reservoir Feasibility Study (AKA – SB10 and CEPP PACR)

- Next increment of storage and necessary treatment to provide progress towards the level of restoration envisioned for the CERP
- Continue to improve the quantity, quality, timing and distribution of water flows to the Northern Estuaries and central Everglades
- Be consistent with federal program and policy requirements to maintain eligibility for federal cost share

Florida State Law

Chapter 2017-10 Requirements as it Relates to Post-Authoı

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  October 1, 2018



Planning Process & Schedule

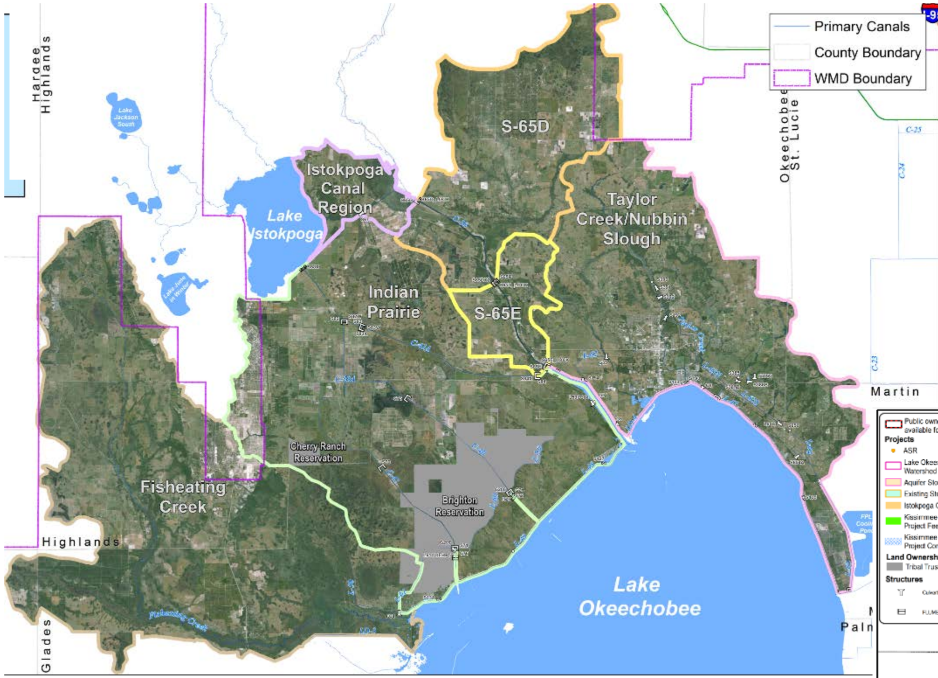
- Section 203 of the Water Resources Development Act (WRDA) of 1986, as amended
- Key Activities and Target Dates:
  - Update to Florida State Legislature - by January 9, 2018
  - Draft Report complete – by January 30, 2018
  - Final Report and submittal to Assistant Secretary of the Army for Civil Works – March 30, 2018
  - ASA(CW) submit report to Congress – October 1, 2018
  - Anticipated Congressional authorization – by December 31, 2019



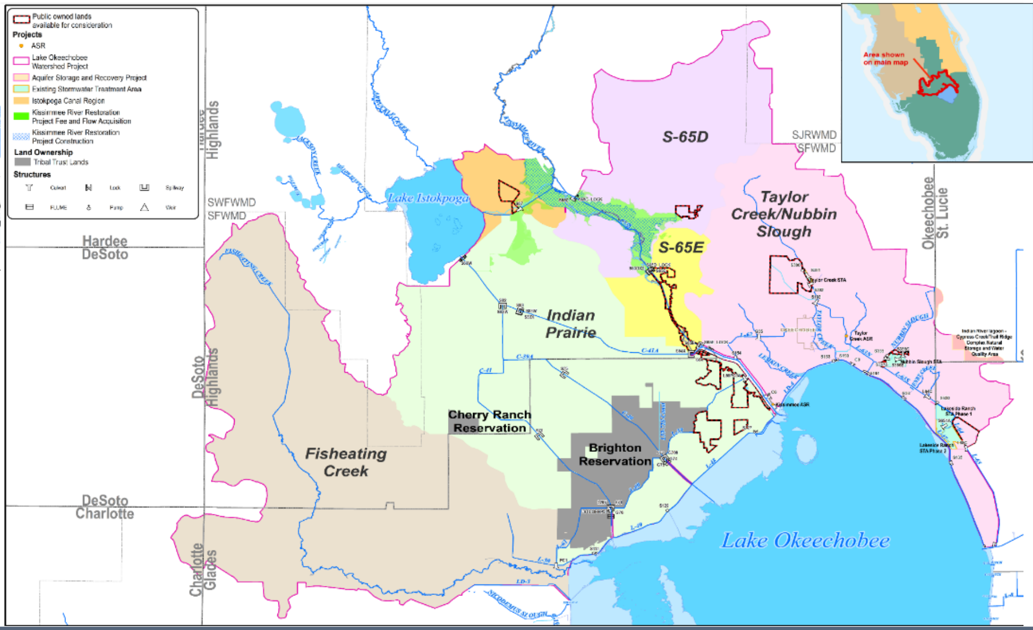
Lake Okeechobee

Lake Okeechobee Watershed Restoration Project

Lake Okeechobee Watershed Restoration Project Study Area



- ~950,000 acres
- Historically dominated by wetlands
- Current land use include:
  - Agriculture
  - Natural/Open Land and Water
  - Urban/Infrastructure



Lake Okeechobee Watershed Restoration Project

Goals & Objectives

- Increase water storage capacity in the watershed, resulting in improved Lake Okeechobee water levels
- Improve the quantity and timing of discharges to the St. Lucie and Caloosahatchee estuaries
- Restore wetlands
- Improve water supply

Status

- Project Delivery Team meeting to discuss Tentatively Selected Plan (TSP) – December 8, 2017
- TSP milestone – January 25, 2018
- Release Draft Project Implementation Report for Agency and Public Review – February 2018

Project Alternatives

Alternative 1Br



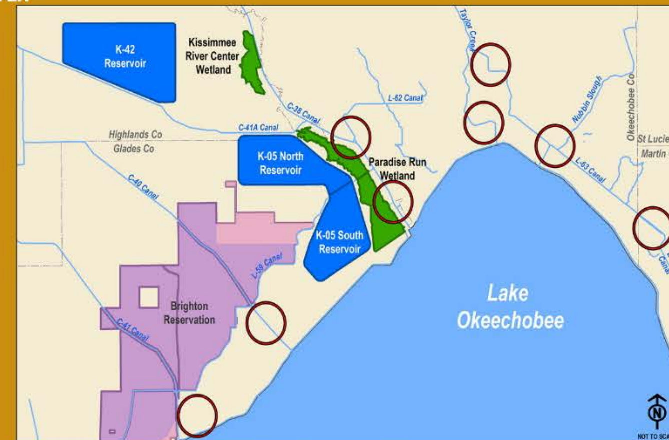
Reservoir Component
- K-05 Revised
- Approx. 14,600 acres
- 198,000 acre-feet of storage

Aquifer Storage and Recovery
- 80 ASR wells
- 448,000 acre-feet of storage per year

Wetland Restoration
- KR Center: Approx. 1,200 acres
- Paradise Run: Approx. 4,100 acres

Preliminary Project Cost Estimate: $1.9 billion

Alternative 2A



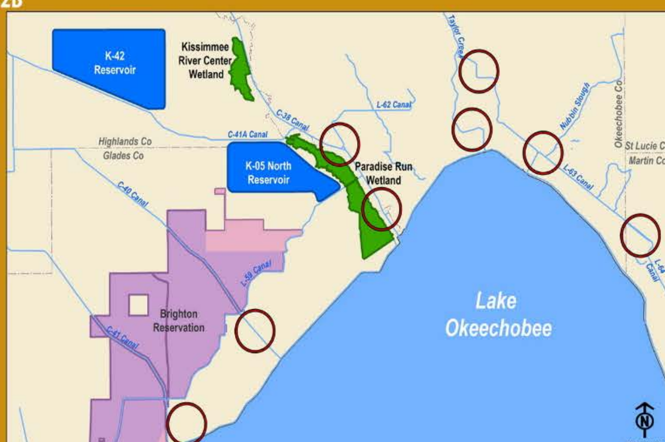
Reservoir Component
- K-05 North, K-05 South and K-42
- Approx. 26,500 acres
- 361,000 acre-feet of storage

Aquifer Storage and Recovery
- 110 ASR wells
- 616,000 acre-feet of storage per year

Wetland Restoration
- KR Center: Approx. 1,200 acres
- Paradise Run: Approx. 4,100 acres

Preliminary Project Cost Estimate: $3.3 billion

Alternative 2B



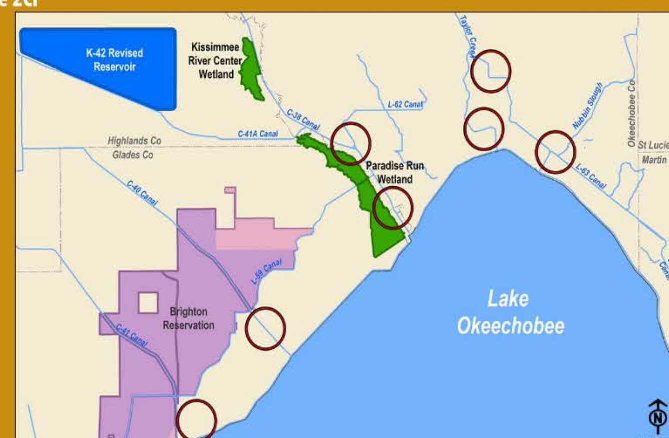
Reservoir Component
- K-05 North and K-42
- Approx. 20,300 acres
- 276,000 acre-feet of storage

Aquifer Storage and Recovery
- 70 ASR wells
- 392,000 acre-feet of storage per year

Wetland Restoration
- KR Center: Approx. 1,200 acres
- Paradise Run: Approx. 4,100 acres

Preliminary Project Cost Estimate: $2.5 billion

Alternative 2Cr



Reservoir Component
- K-42 Revised
- Approx. 14,600 acres
- 195,000 acre-feet of storage

Aquifer Storage and Recovery
- 65 ASR wells
- 364,000 acre-feet of storage per year

Wetland Restoration
- KR Center: Approx. 1,200 acres
- Paradise Run: Approx. 4,100 acres

Preliminary Project Cost Estimate: $1.8 billion



Big Cypress National Preserve

Western Everglades Restoration Project



Preliminary Study Area

RESERVATIONS IN PLANNING AREA

- SEMINOLE TRIBE OF FLORIDA
- MICCOSUKEE TRIBE OF INDIANS OF FLORIDA

- ~772,700 acres (~1,200 sq. miles)
- Historically dominated by wetlands
- Current land use and land cover include:
  - Natural Land/ Wetlands
  - Agriculture
  - Urban/Infrastructure

Purpose:

- Improve the quantity, quality, timing, and distribution of water needed to restore and reconnect the western Everglades ecosystem

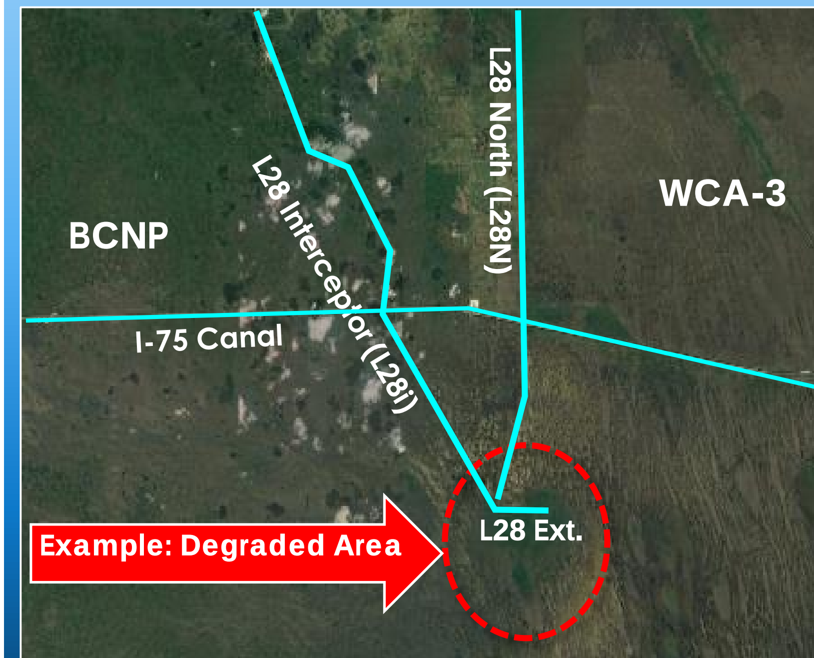
Western Everglades Restoration Project

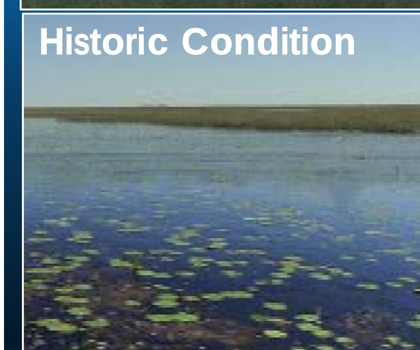
Objectives:

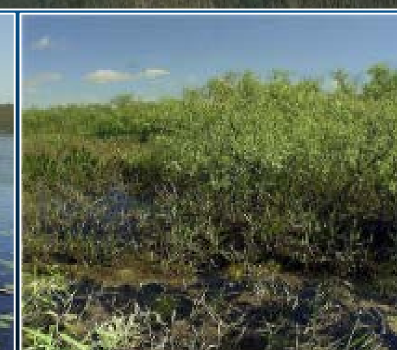
- Reestablish ecological connectivity of wetland & upland habitats in the western Everglades
- Restore low nutrient (oligotrophic) conditions
- Reduce wildfires
- Promote system-wide resilience

Status:

- Three alternatives developed
- First round of modeling anticipated in December 2017
- Tentatively Selected Plan will be identified in July 2018







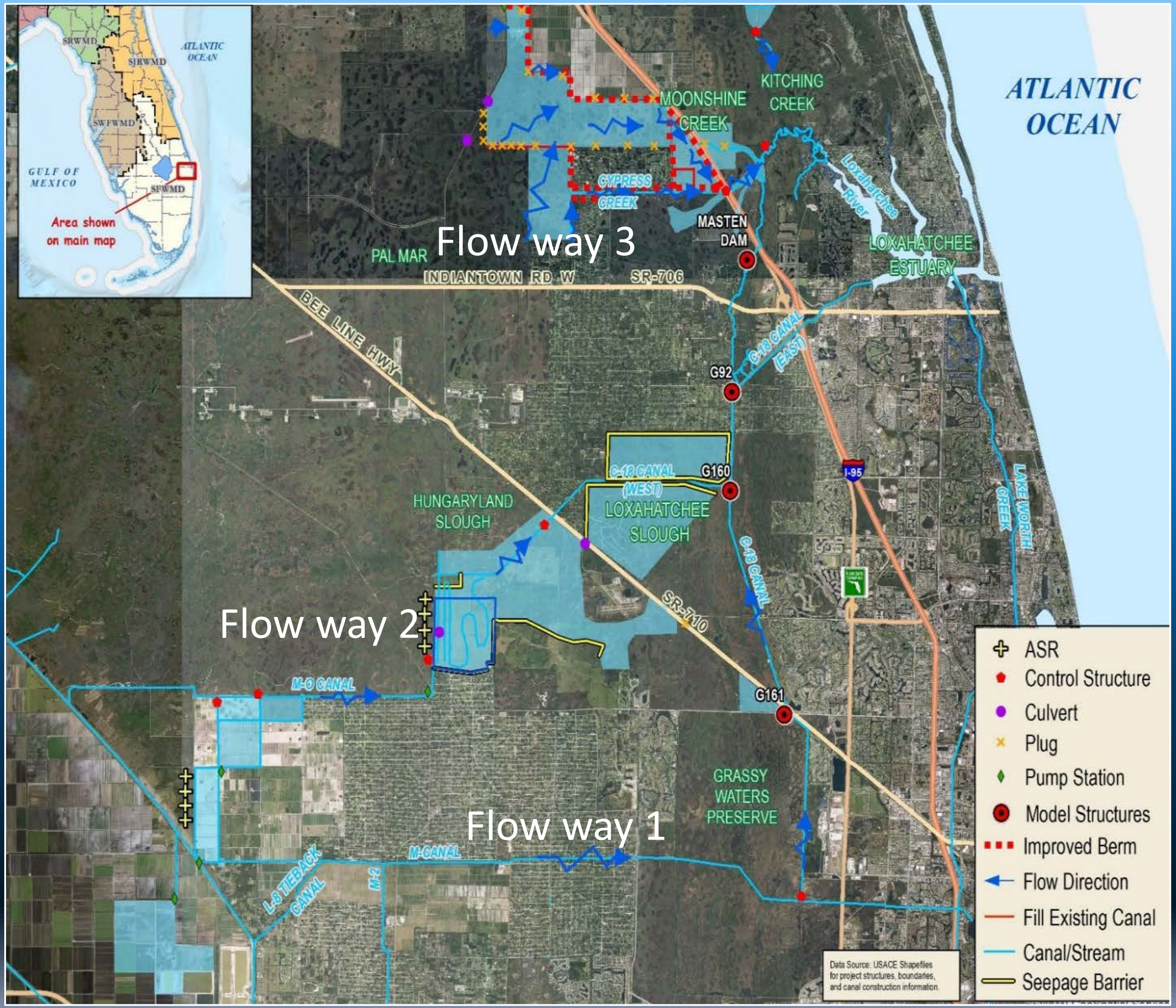


Loxahatchee River

Loxahatchee River Watershed Restoration Project

Loxahatchee River Watershed Restoration Study Area

- ~482,000 acres
- Historically dominated by wetlands and sloughs
- Current land use include:
  - Natural/Open Land and Water
  - Urban/ Infrastructure



Loxahatchee River Watershed Restoration Project Study Scope

Purpose:

- Restore wet and dry season flows to the Northwest Fork of the Loxahatchee River
- Enhance estuarine communities in the Loxahatchee Estuary
- Increase spatial extent and function of remaining natural areas

Status:

- Six alternatives developed
- Model calibration, verification, and base runs, and finalized alternatives modeling assumptions are anticipated in Dec. 2017
- Tentatively Selected Plan will be identified in April 2018



NW Fork Loxahatchee River



Loxahatchee Floodplain


Lake Okeechobee


Big Cypress National Preserve


Loxahatchee River

Discussion

For more information:
https://www.sfwmd.gov/our-work/restoration-strategies
https://www.sfwmd.gov/our-work/everglades

Broward County Water and Wastewater Services (WWS) Overview

Kevin Carter, Broward County Water and Wastewater Services
kcarter@broward.org
954-831-0718

North Regional/Broward College Library
SFWMD Lower East Coast Workshop– November 30, 2017

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Broward County Water and Wastewater's Brief History

- County purchased small, investor-owned water and wastewater utility in 1962 and other private utilities by 1975:
  - Broward County's overall population in 1960 was around 330K
- North Regional Wastewater Treatment Plant (NRWWTP) construction began in 1972
- Wholesale wastewater service to Large Users begins in 1975 during countywide regionalization
- 3 Retail Water and Wastewater Service Areas: Districts 1, 2 and 3:
  - Established uniform rates throughout service area 1976



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Today's Broward County Water and Wastewater Services (WWS)

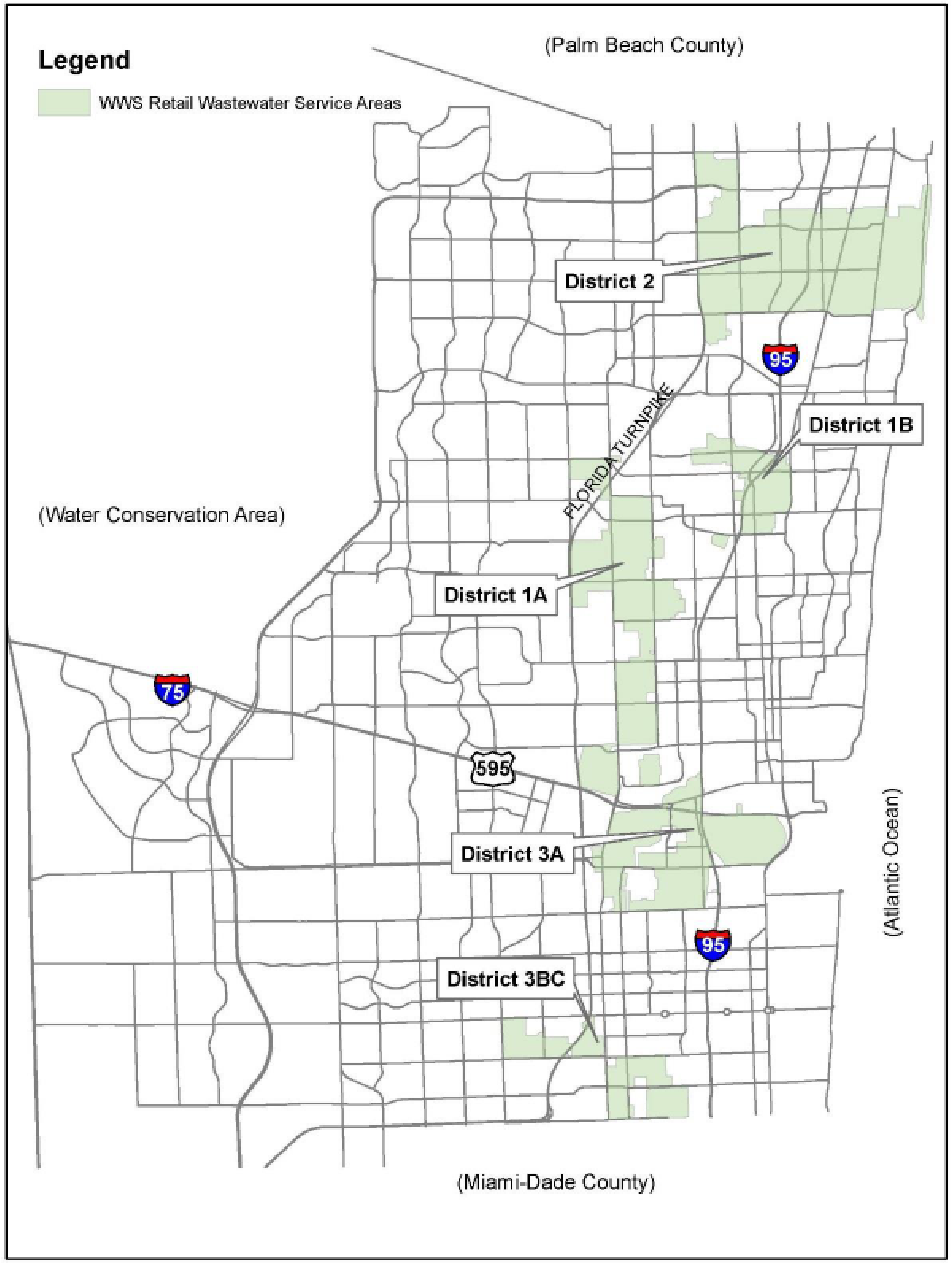
- Over 400 employees within 6 divisions (Administration, Business Operations, Engineering, Information Technology, Operations, and Water Management):
  - $188 million annual systems cost
- Over 600,000 residents served for wastewater treatment and approximately 181,000 residents receive our drinking water
- 700 miles of water distribution and transmission mains:
  - 2016 Florida Section of the American Water Works Association Water Distribution System (Division 6) Winner!
- 444 miles of gravity sewers, 239 lift stations, 8 master pump stations, 112 miles of force mains, and 8 deep injection wells

Broward County WWS: NRWWTP
Innovative Energy Project



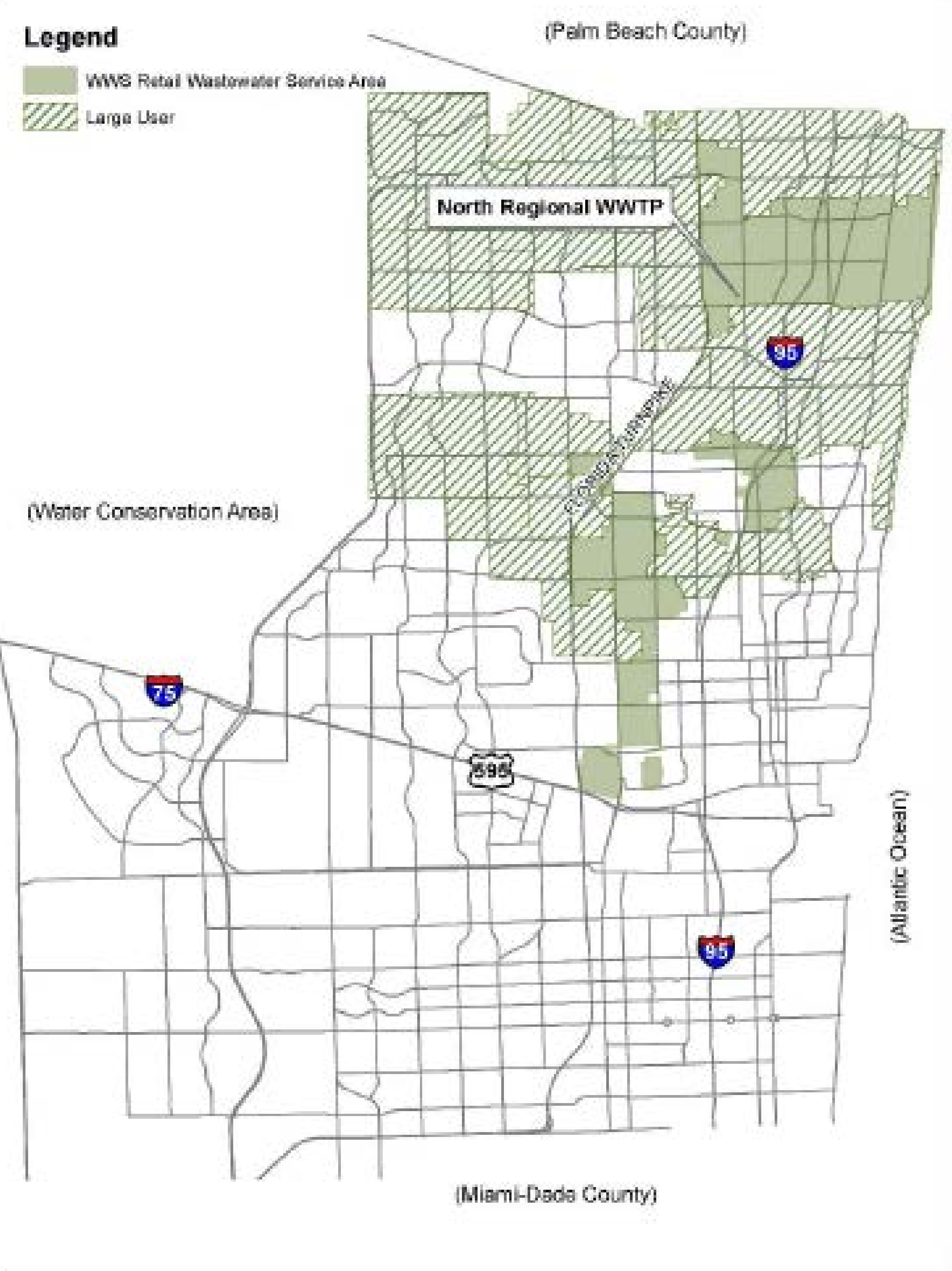
- First South Florida Wastewater Plant Cogeneration System that reduces almost 9,000 metric tons greenhouse gas emissions annually:
  - Equal to removing ~ 1,900 cars from road annually;
  - Offsets the wastewater treatment plant's power bill by 25% and provides ~$26 Million in savings over 17 years.

  http://opterraenergy.com/ps/browardcounty.html



Broward County WWS: Retail Wastewater

- 49,650 wastewater accounts
- Average annual daily flow of 14 MGD (primarily based on water sold)
- Districts 1 and 2 wastewater treated at the Broward County NRWWTP
- Districts 3A and 3BC wastewater treated at the City of Hollywood Southern Regional Wastewater Treatment Plant (WWS has 5.9 MGD reserved capacity)

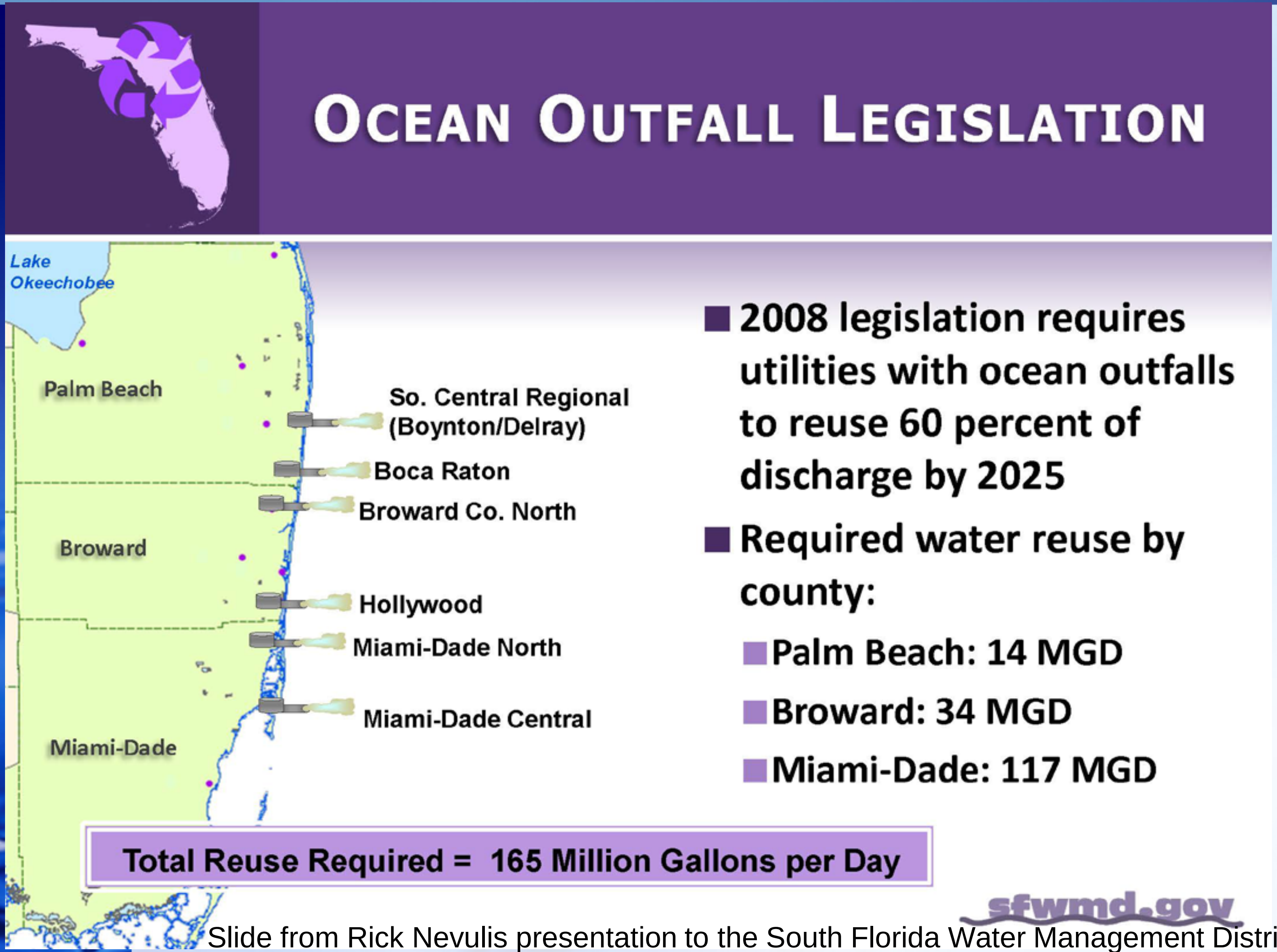


Broward County WWS: Regional Wastewater

- NRWWTP Large Users and Retail System have reserved capacity of 87 MGD:
  - FDEP Permitted Capacity of 95 MGD
  - FY 2016's annual average daily flow rate was 70.7 MGD
- Large Users are Cities of Coconut Creek, Coral Springs, Deerfield Beach, Lauderhill, North Lauderdale, Oakland Park, Pompano Beach and Tamarac as well as North Springs Improvement District, Parkland Utilities, and Royal Utilities
- Current disposal by Ocean outfall and 8 onsite deep injection wells (66 MGD capacity):
  - 10 MGD Water Reuse capacity

Broward County WWS:
Reuse Water Increase

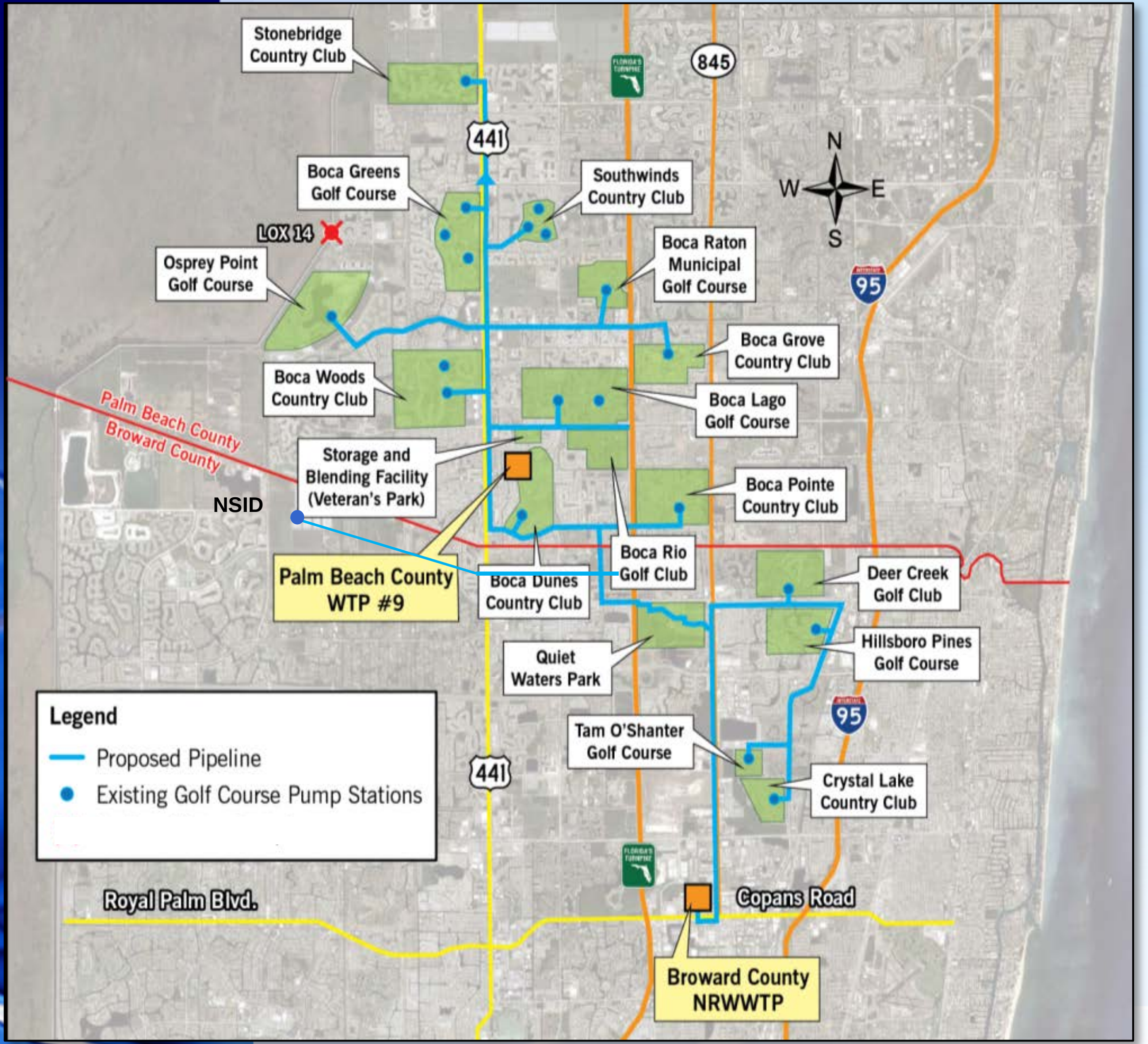




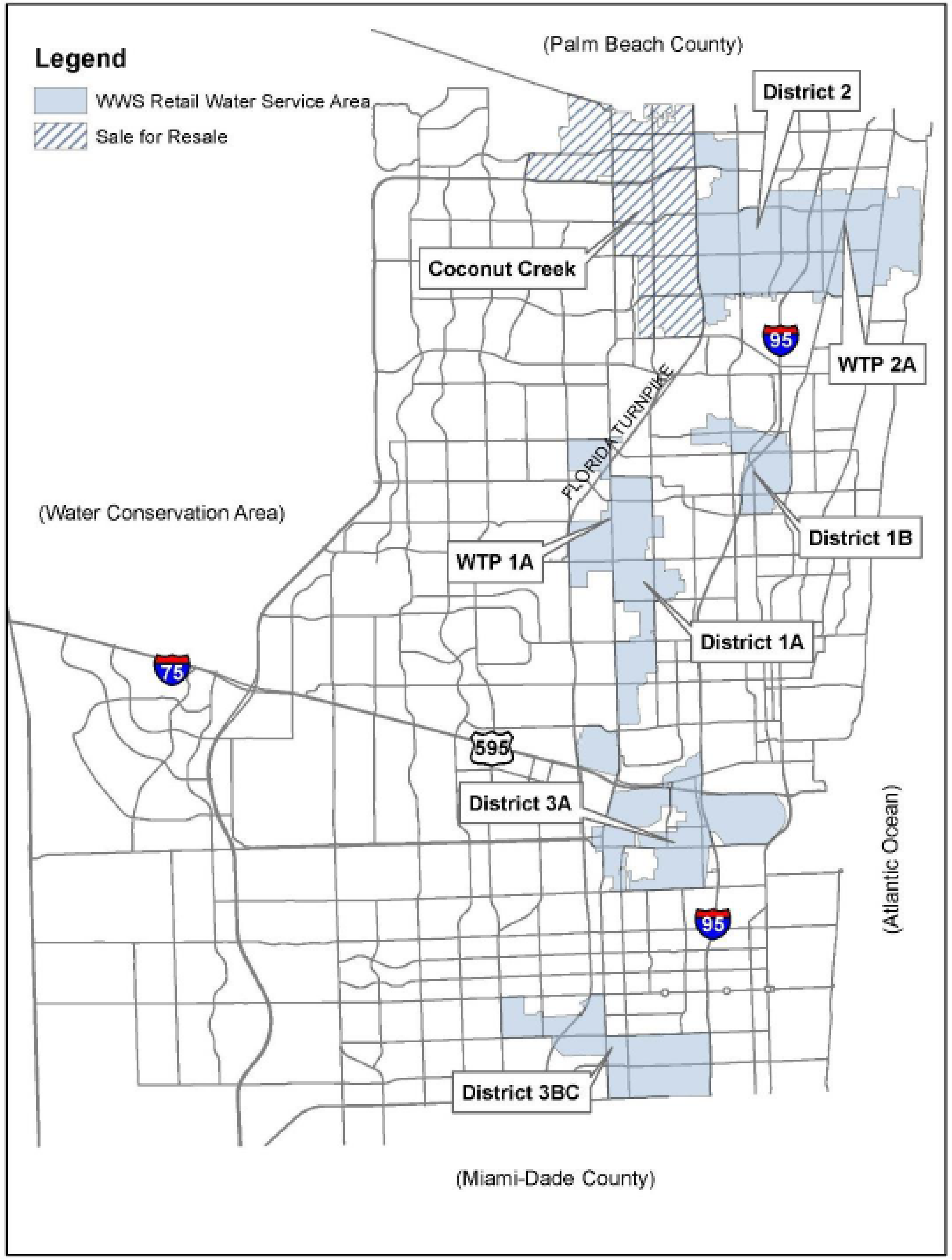
Slide from Rick Nevulis presentation to the South Florida Water Management District Governing Board May 2016 (https://apps.sfwmd.gov/webapps/publicMeetings/viewFile/9840)

- In 2008, The Florida Legislature "finds that the discharge of domestic wastewater through ocean outfalls wastes valuable water supplies that should be reclaimed for beneficial purposes to meet public and natural systems demands." 403.086 Florida Statutes

Solving the Ocean Outfall Legislation Challenge: A Purple Pipe Partnership is Born



- Broward County WWS needs to increase beneficial reuse to 26 MGD:
  - o Initial cost estimates near $500 million, current construction estimates at $78 million
- Palm Beach County Water Utilities Department (PBC) needs reuse water for golf courses in southern region:
  - o Partnership will be implemented through an interlocal agreement signed in 2016
- PBC receives up to 10.5 MGD of reuse water:
  - o Broward County WWS also sending up to 3 MGD to North Springs Improvement District

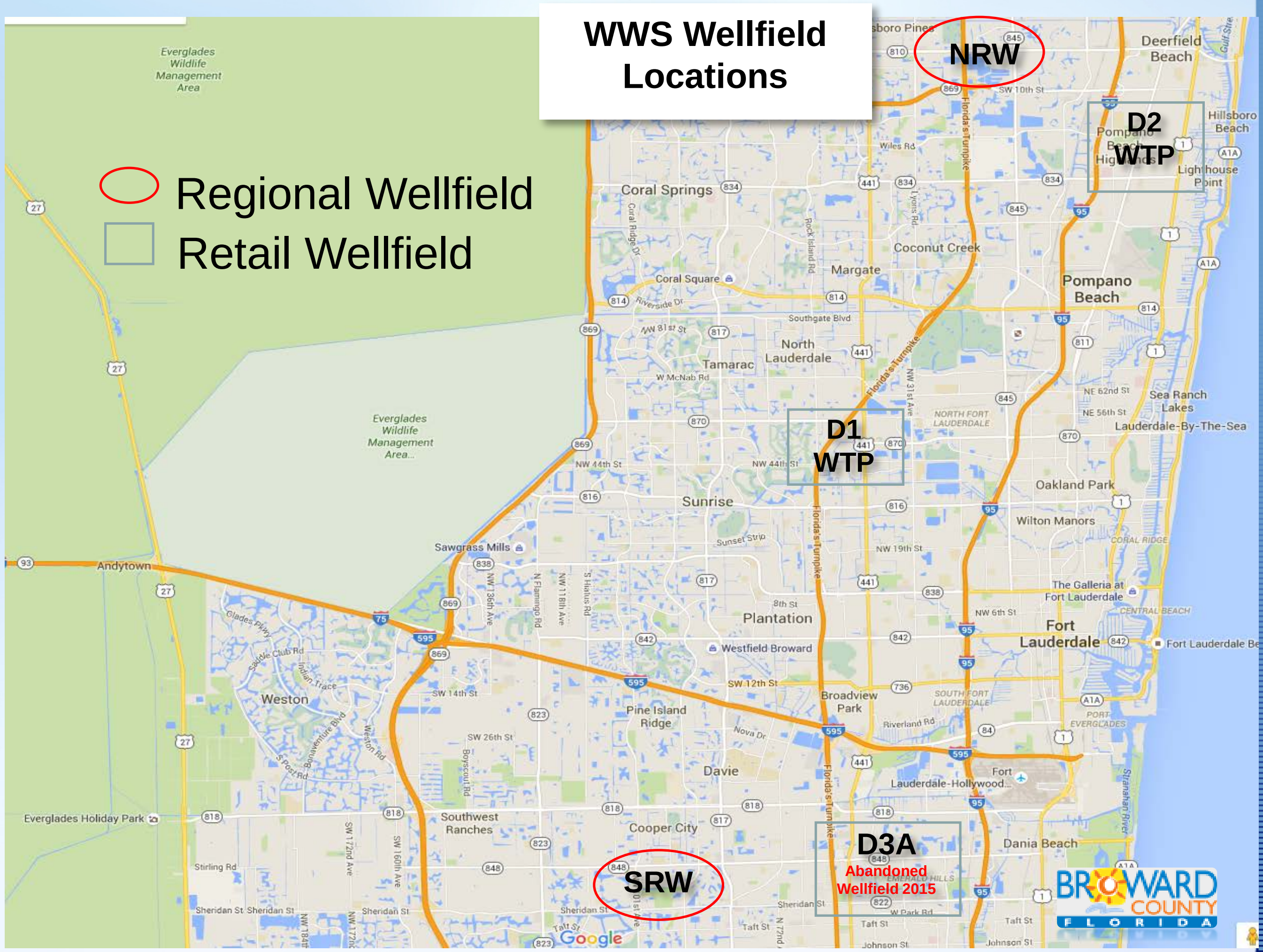


Broward County WWS: Retail Water

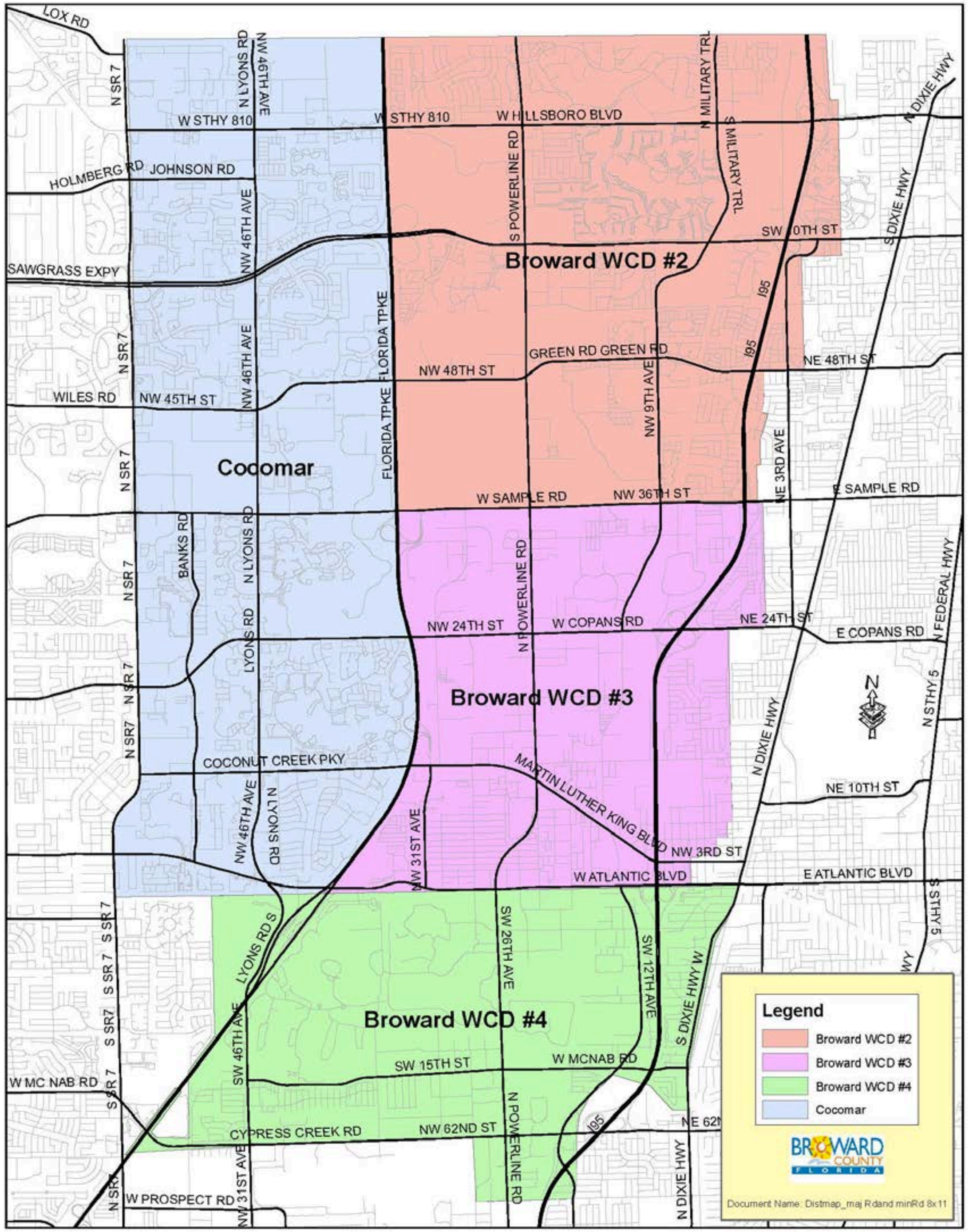
- 56,700 water accounts and 1 bulk treated water large user (City of Coconut Creek)
- 2 Lime Softening Water Treatment Plants (Districts 1 and 2) have 56 MGD capacity:
    - o 2 Retail potable water supply wellfields (Districts 1 and 2) with combined capacity of 51 MGD
- Bulk treated water purchased from City of Hollywood to serve District 3
- Combined SFWMD Consumptive Use Allocation of 20 MGD:
    - o Current combined withdrawal of 15 MGD (Sep. 2017) from Biscayne Aquifer

Broward County WWS:
Regional Public Water Supply Wellfields

- 2 regional public water supply wellfields (North and South Regional) with total combined capacity of 52 MGD
- 6 bulk raw water large users:
  - o NRW - Deerfield Beach and Broward County District 2
  - o SRW - Dania Beach, Hallandale Beach, Hollywood, and FPL
- Combined SFWMD CUP Allocation of 19 MGD:
  - o Current combined withdrawal of 17 MGD (Sep. 2017)



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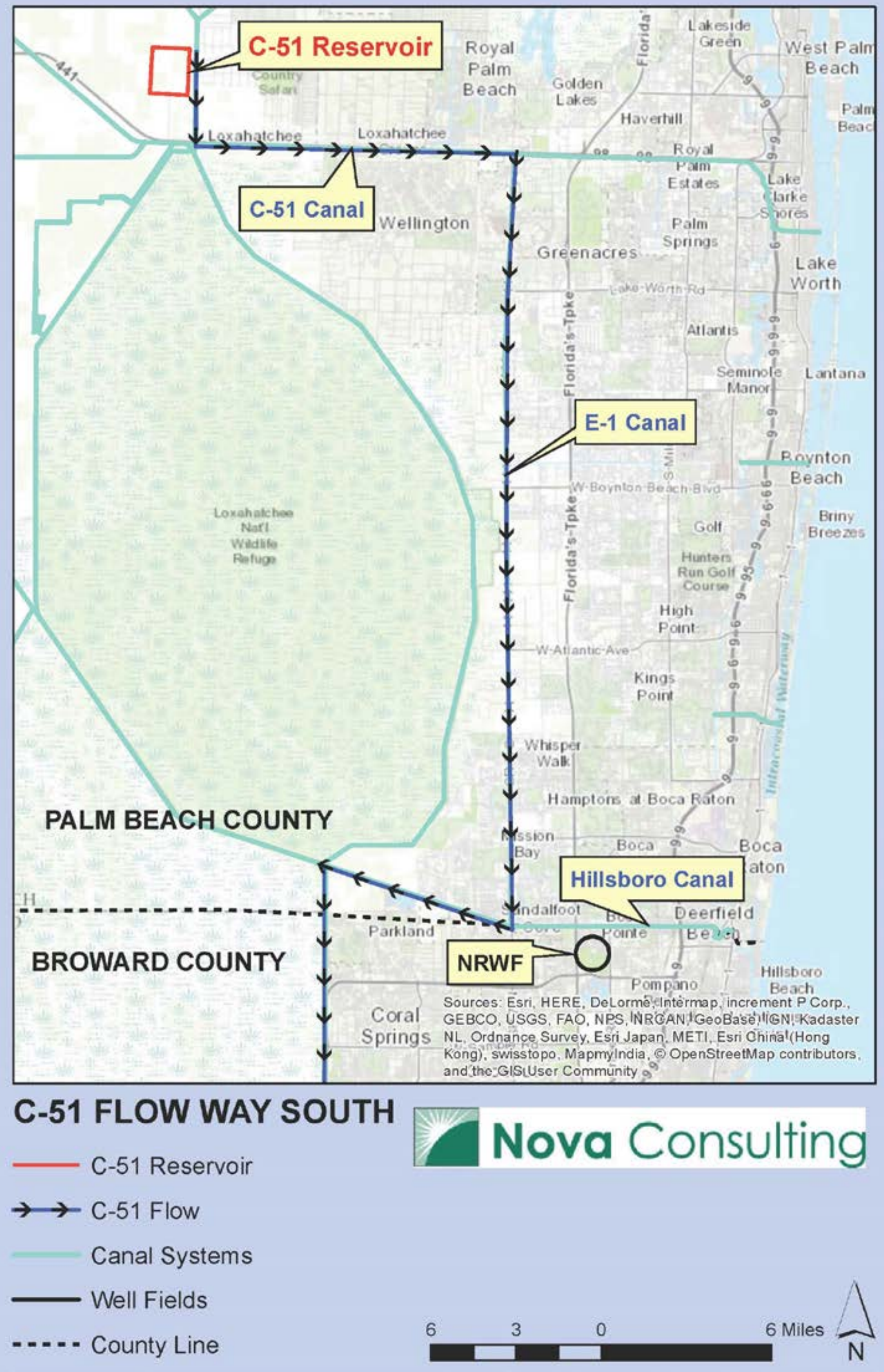
Broward County WWS:
Surface Water Management

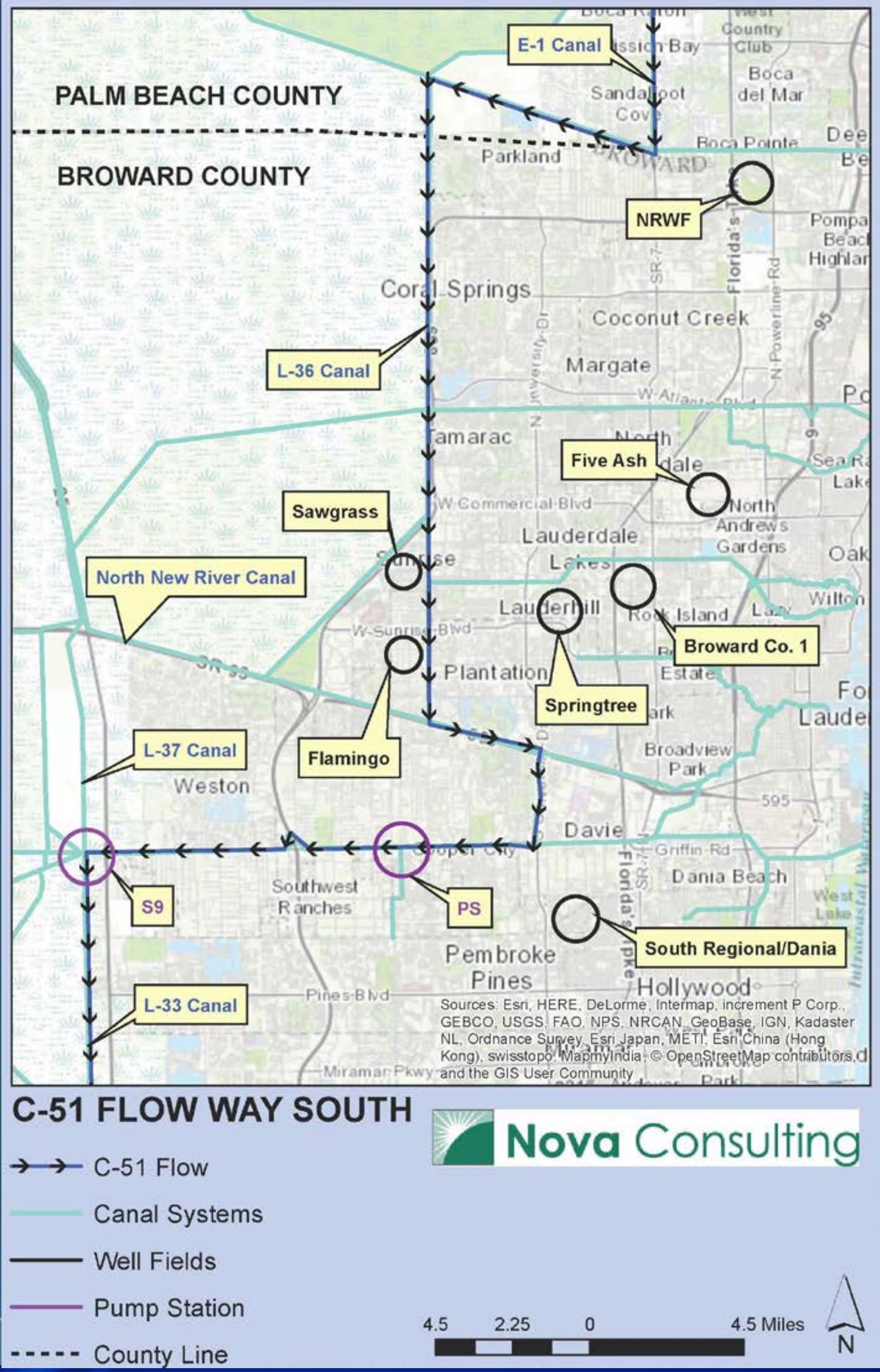
- Water Management Division develops and manages the waterway operations and maintenance programs to provide:
  - o Drainage and flood control
  - o Recharge for potable water supply
  - o Saltwater intrusion abatement
  - o Surface water management
  - o And for environmental purposes
- Manage 4 major Water Control Districts (WCD) in Northern Broward County:
  - o WCDs 2-4, and Cocomar

Broward County WWS Future Water Supply Planning: C-51 Reservoir Project Participant



- C-51 Reservoir is in central Palm Beach County:
    - Owned and operated by Palm Beach Aggregates as rock mining facility
- Broward County and Palm Beach Aggregates formed agreement on May 2, 2017 for WWS to purchase capacity allocation (6 mgd) from Phase 1
- The capital cost is $27.6 million that equates to $4.6 million per mgd:
    - Broward County WWS first utility to sign agreement



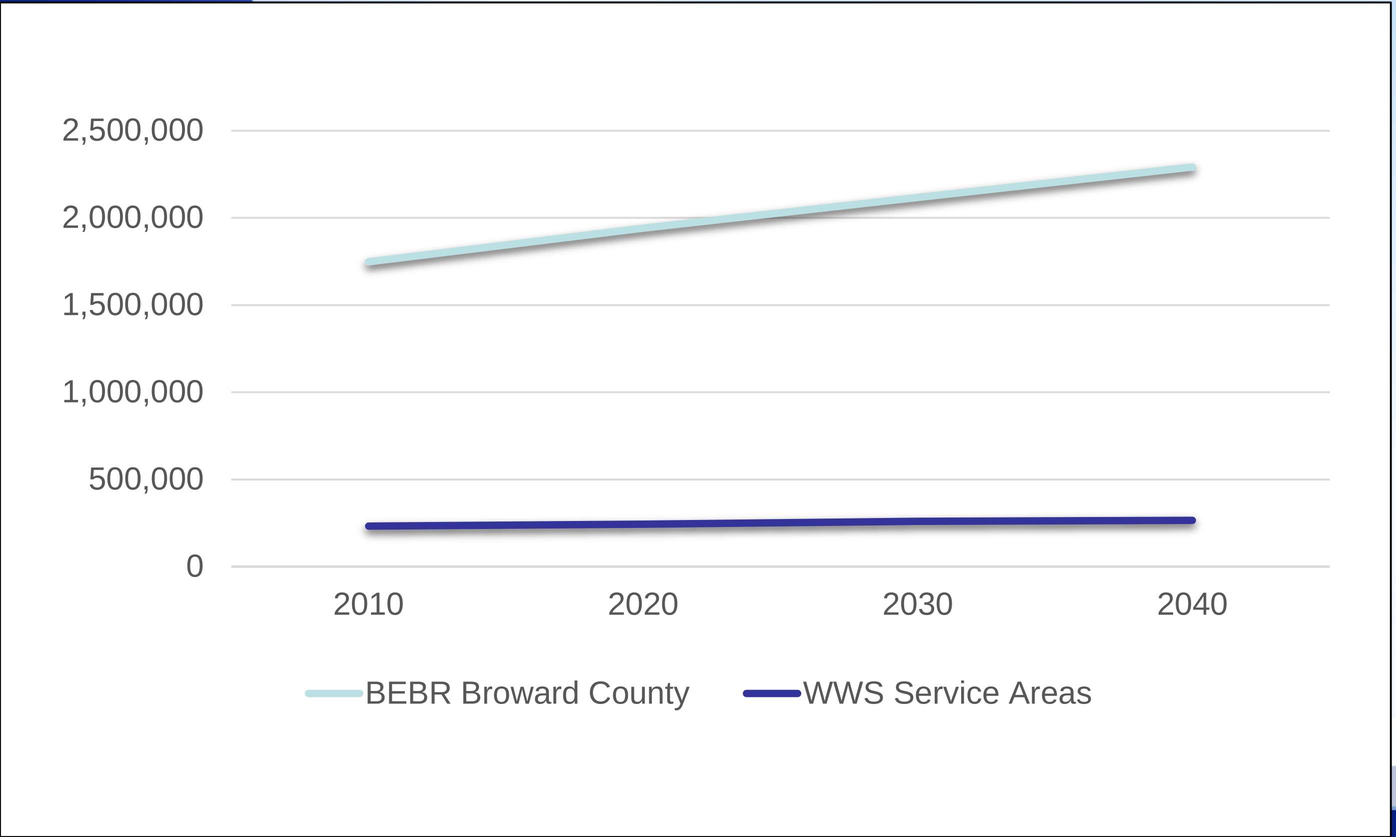


C-51 Reservoir Project's Planned Conveyance to Broward County

Graphics from Ernie Cox, Palm Beach Aggregates

Broward County WWS: Planning Forward for Current and Future Customers

Broward County Projected Population Growth



Year	BEBR Forecast [b]	WWS Forecast [c]
2010	1,748,066 [a]	232,573
2020	1,940,700	242,881
2030	2,117,200	260,858
2040	2,290,800	265,215

[a] BEBR Florida Population: Census Summary 2010 (April 2011)

[b] BEBR Vol. 50, Bulletin 177 (April 2017)

[c] Broward County Water Supply Facilities Work Plan Update (November 2014)

Happy End of 2017 Hurricane Season!

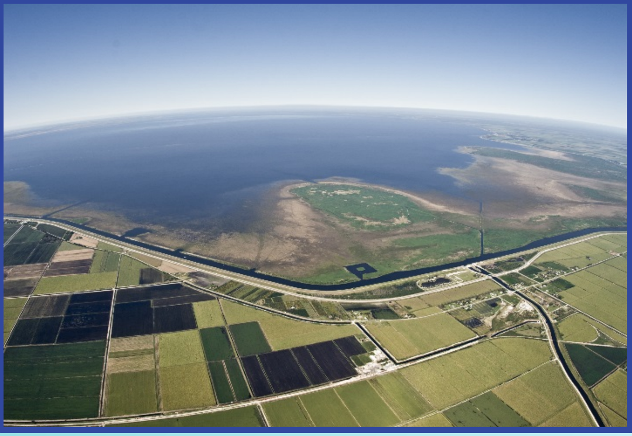
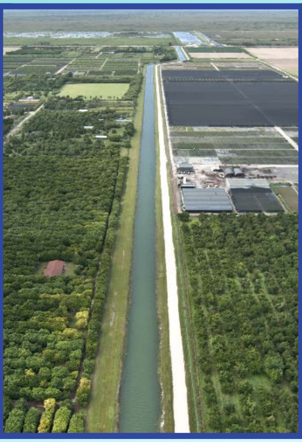


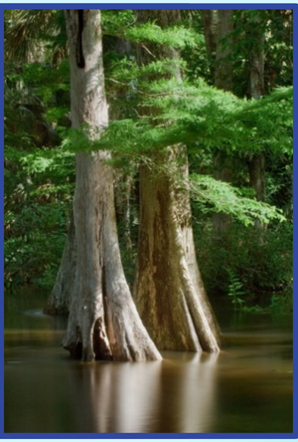


Questions/Discussion Time

Kevin Carter, Broward County Water and Wastewater Services
kcarter@broward.org
954-831-0718

2018 Lower East Coast Water Supply Plan Update

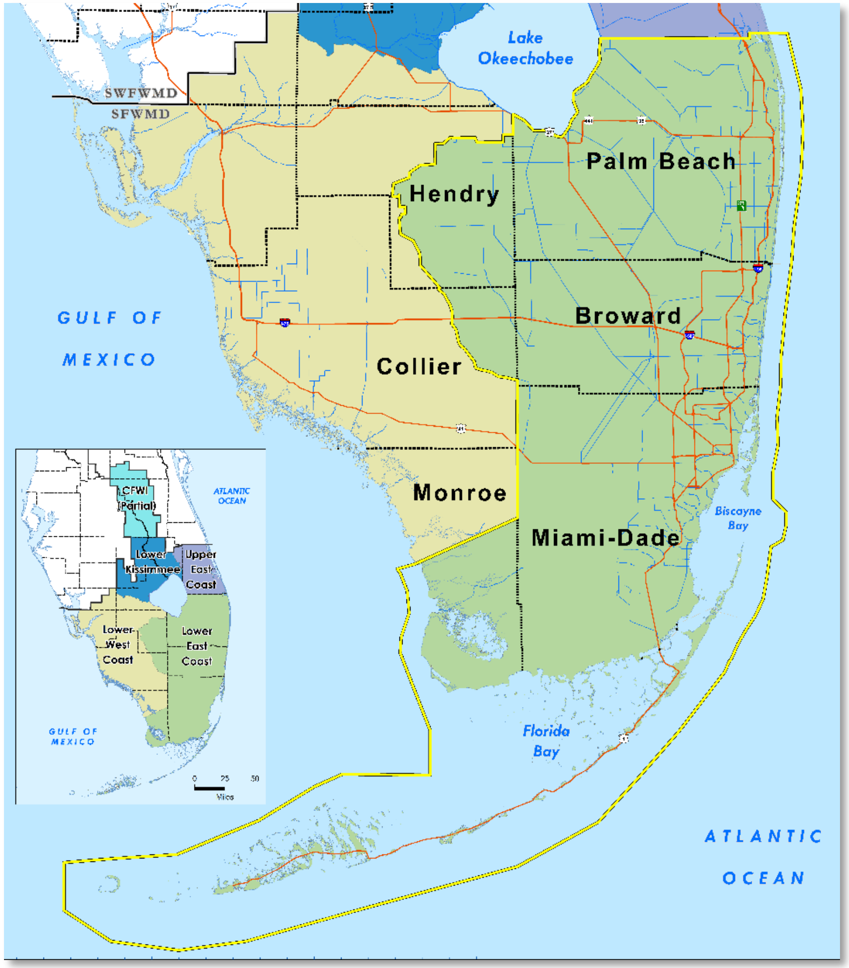


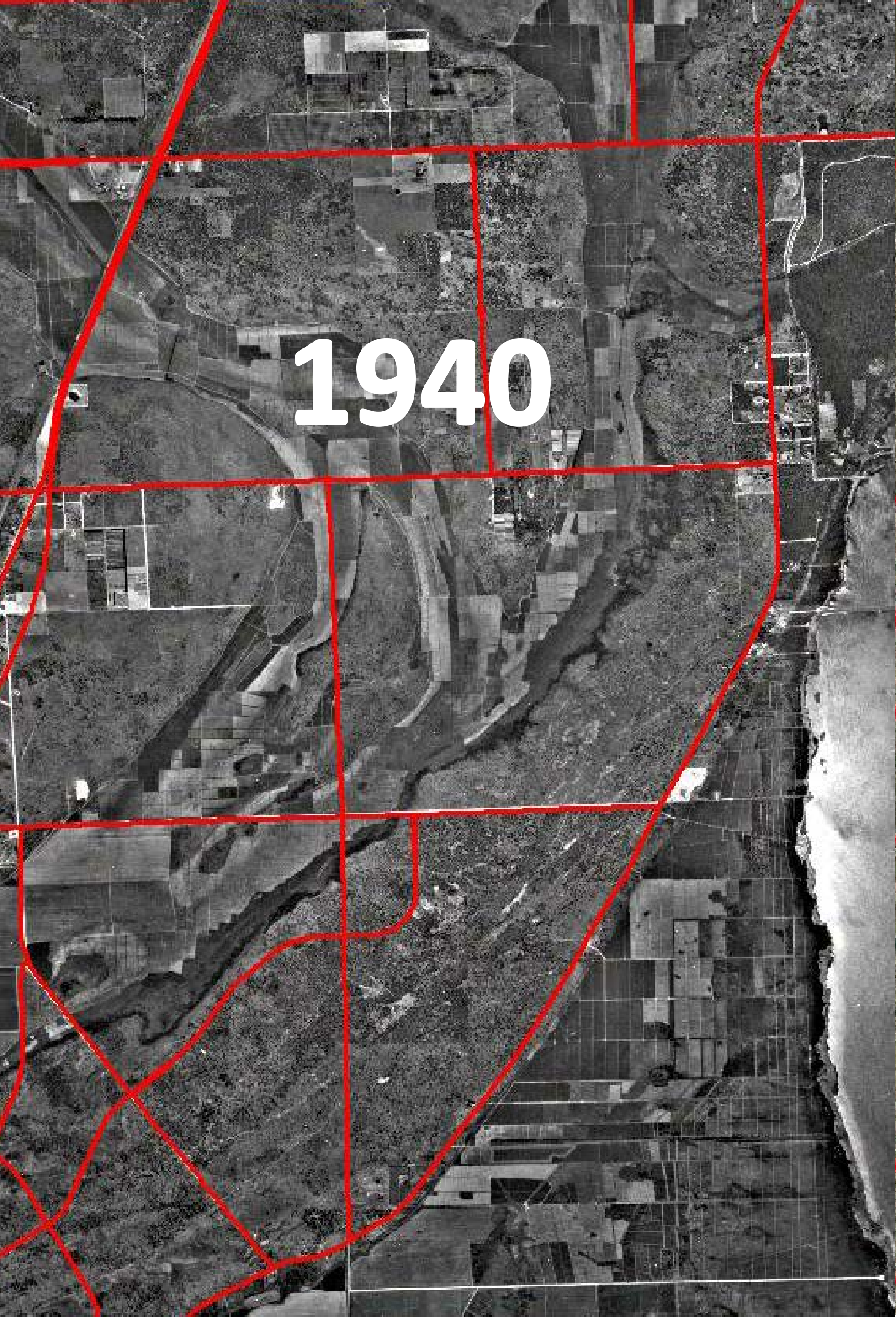
Nathan Kennedy
Lead Economist

2018 LEC Stakeholder Kick-off Meeting
November 30, 2017

Observations Since the 2013 LEC Update

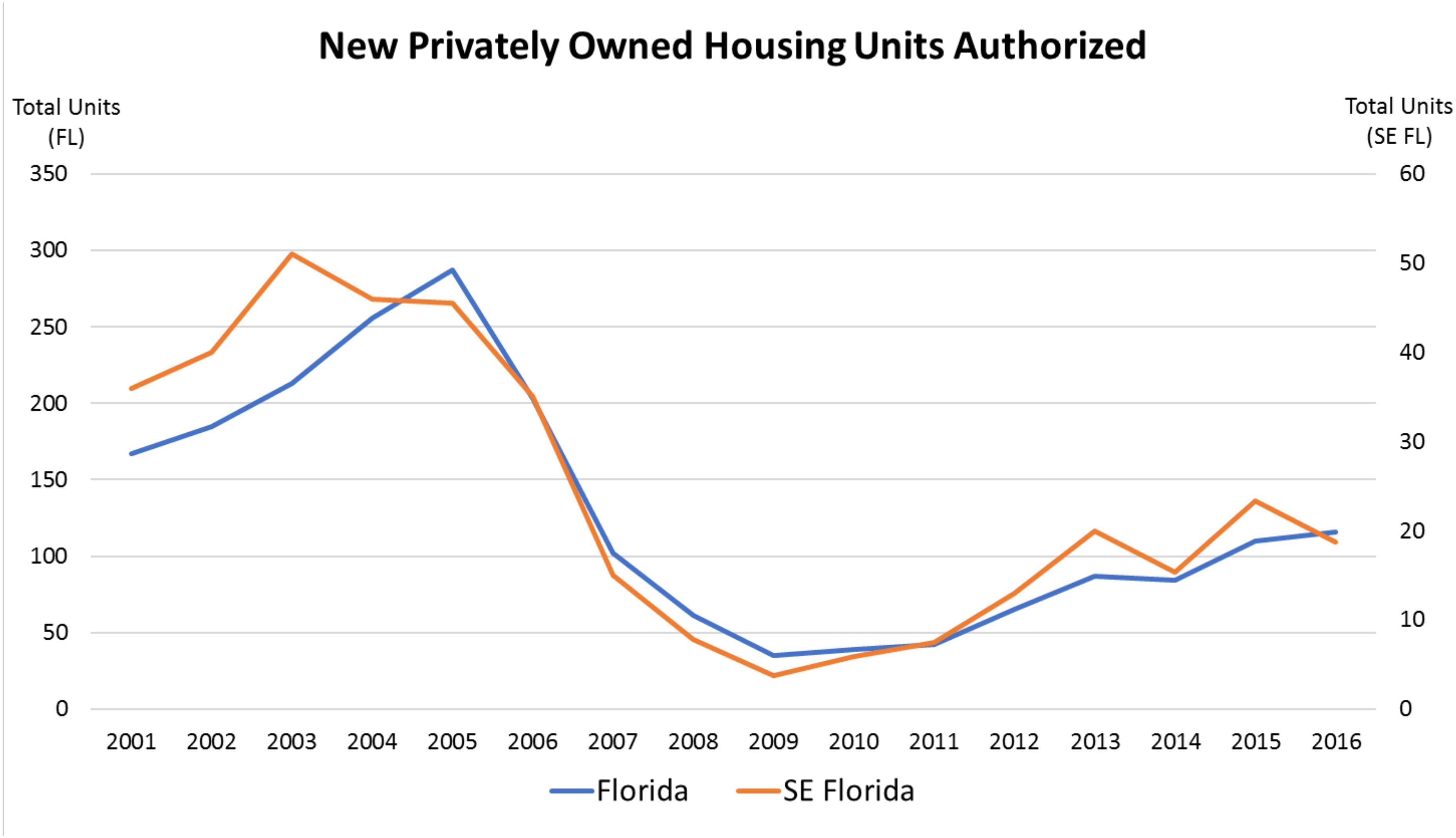
- Continued growth in population and the economy
- Pressure on available land for development
- Agricultural footprint in EAA (Palm Beach and Hendry counties) largely unchanged




1940


2016

Recent Urban Trends



Source: U.S. Census

Water Demand Categories



1. Public Water Supply (PWS)
2. Domestic Self-Supply (DSS)
3. Industrial/Commercial/Institutional (ICI)
4. Recreational/Landscape Irrigation (REC)
5. Power Generation (PWR)
6. Agricultural Irrigation (AGR)



Principles for Demand Estimates & Projections

- Section 373.709, F.S.
- Maintain medium BEBR county totals
- Accurately describe relative growth across the LEC
- Identify and use best available data
- Reproducible and transparent methodology



PWS & DSS Population Projections

Define Current and 2040 Service Area Boundaries

- Coordination with 50 utilities

Estimate 2010 – 2016 Baseline Populations

- US Census and BEBR annual reports

Distribute BEBR 2017 – 2040 Projections to Service Areas

- Based county planning departments' 2040 projections

Review Population Projections with Stakeholders

- Adjustments made based on local input

PWS & DSS Population Projections

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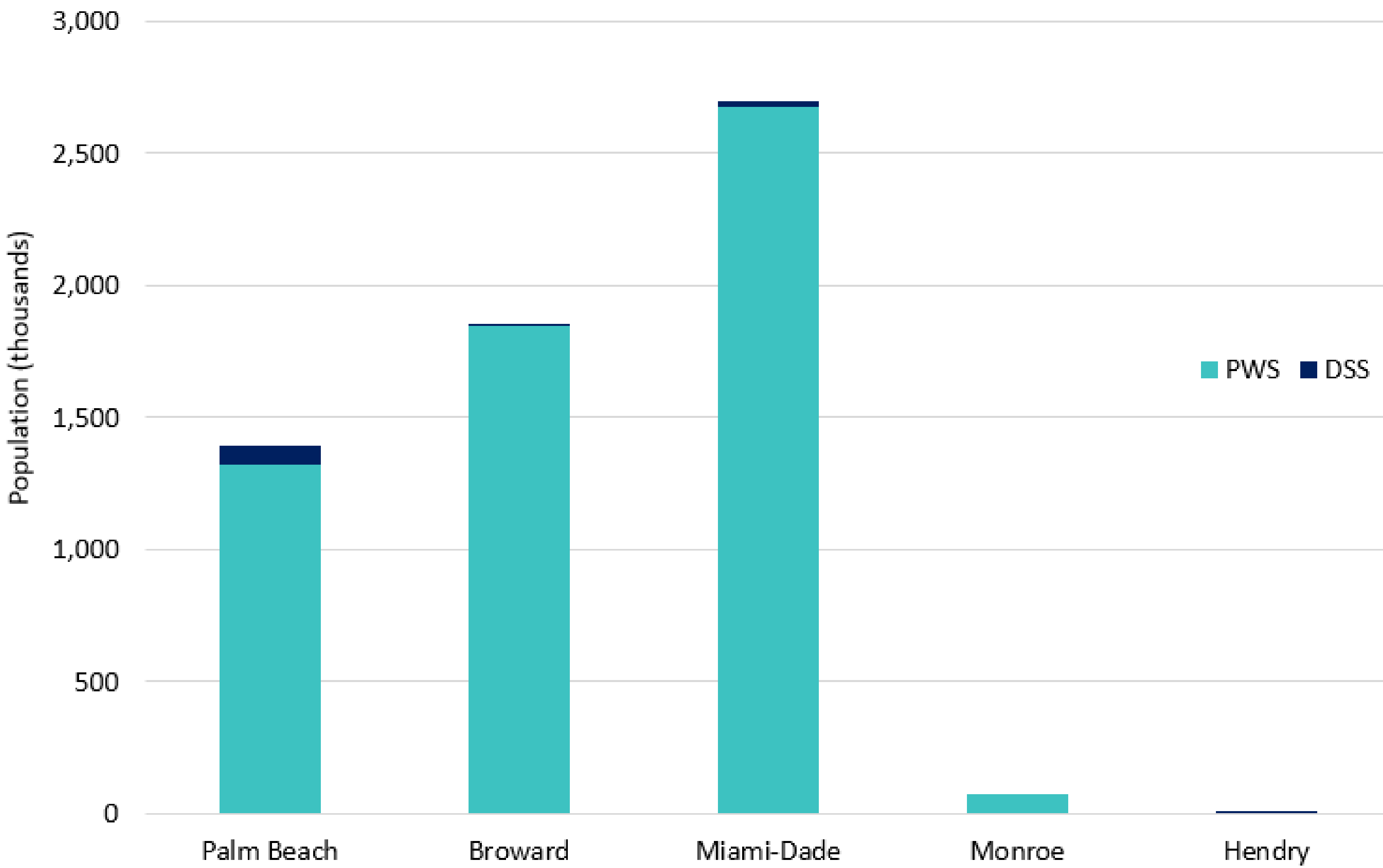
Distribute BEBR 2017 – 2040 Projections to Service Areas

- Based county planning departments' 2040 projections

Review Population Projections with Stakeholders

- Adjustments made based on local input

2016 Draft LEC PWS & DSS Population Estimates



PWS & DSS Population Projections

Define Current and 2040 Service Area Boundaries

- Coordination with 50 utilities

Estimate 2010 – 2016 Baseline Populations

- US Census and BEBR annual reports

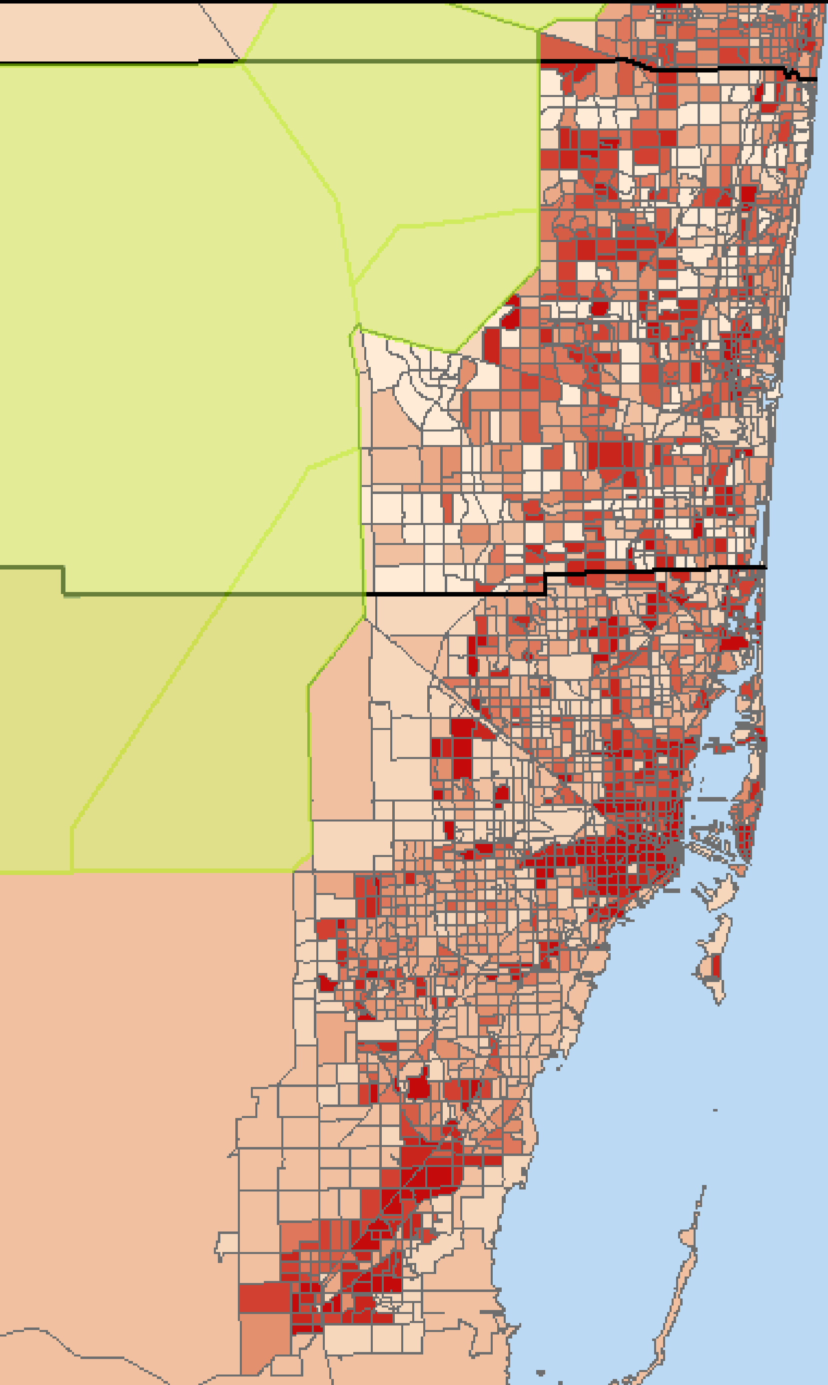
Distribute BEBR 2020 – 2040 Projections to Service Areas

- Based county planning departments' 2040 projections

Review Population Projections with Stakeholders

- Adjustments made based on local input

Miami-Dade/Broward County Traffic Analysis Zone Map

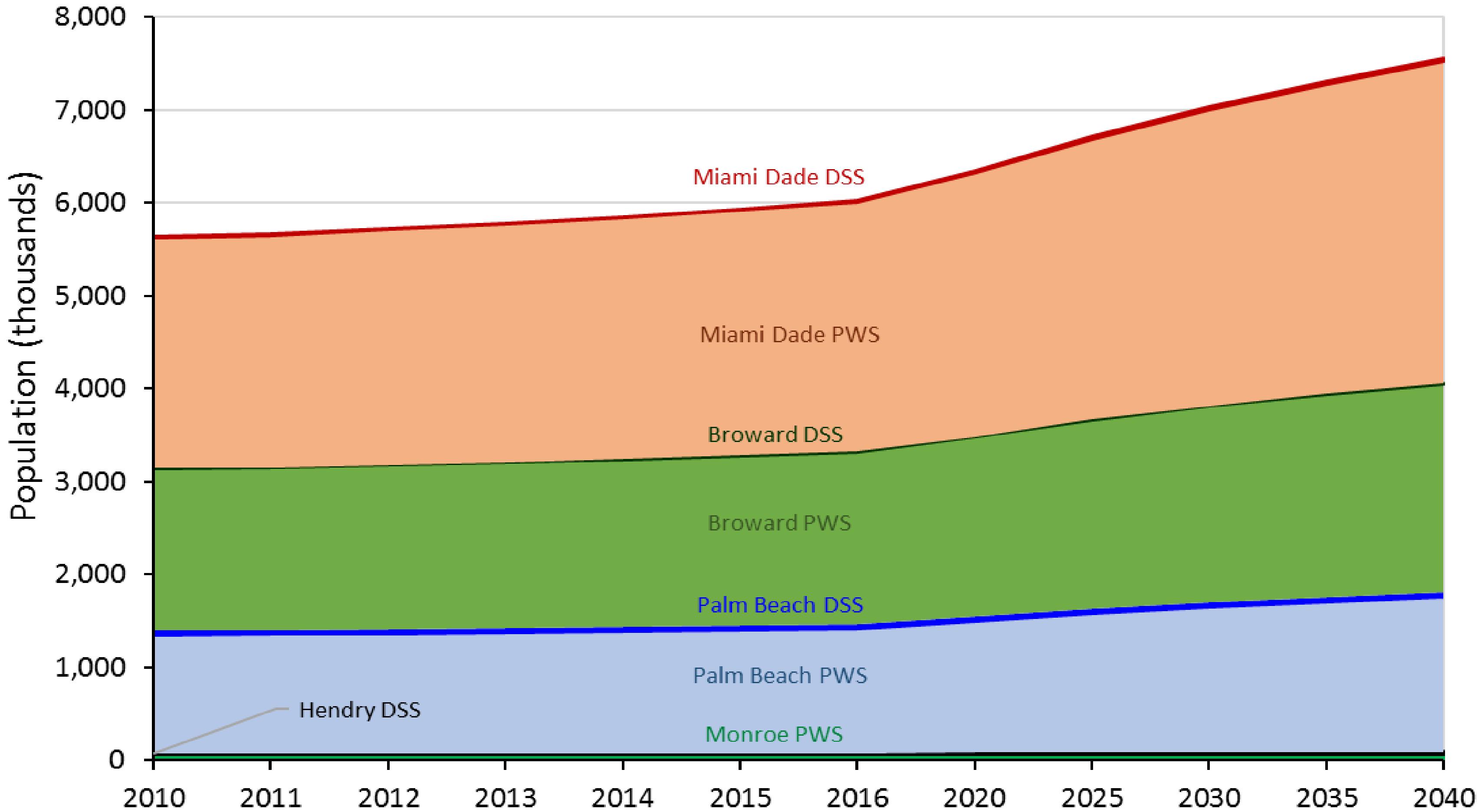


Legend

Change in Person s/Acres from 2016 to 2040

- -3.0 - -0.01
- -0.1 - 0.0
- 0.0 - 0.1
- 0.1 - 0..29
- 0.29 - 0.48
- 0.48- 0.77
- 0.77 - 1.25
- 1.25 - 2.12
- 2.12 - 5.02
- 5.02 - 272.49

Projected PWS and DSS Populations



PWS & DSS Population Projections

Define Current and 2040 Service Area Boundaries

- Coordination with 50 utilities

Estimate 2010 – 2016 Baseline Populations

- US Census and BEBR annual reports

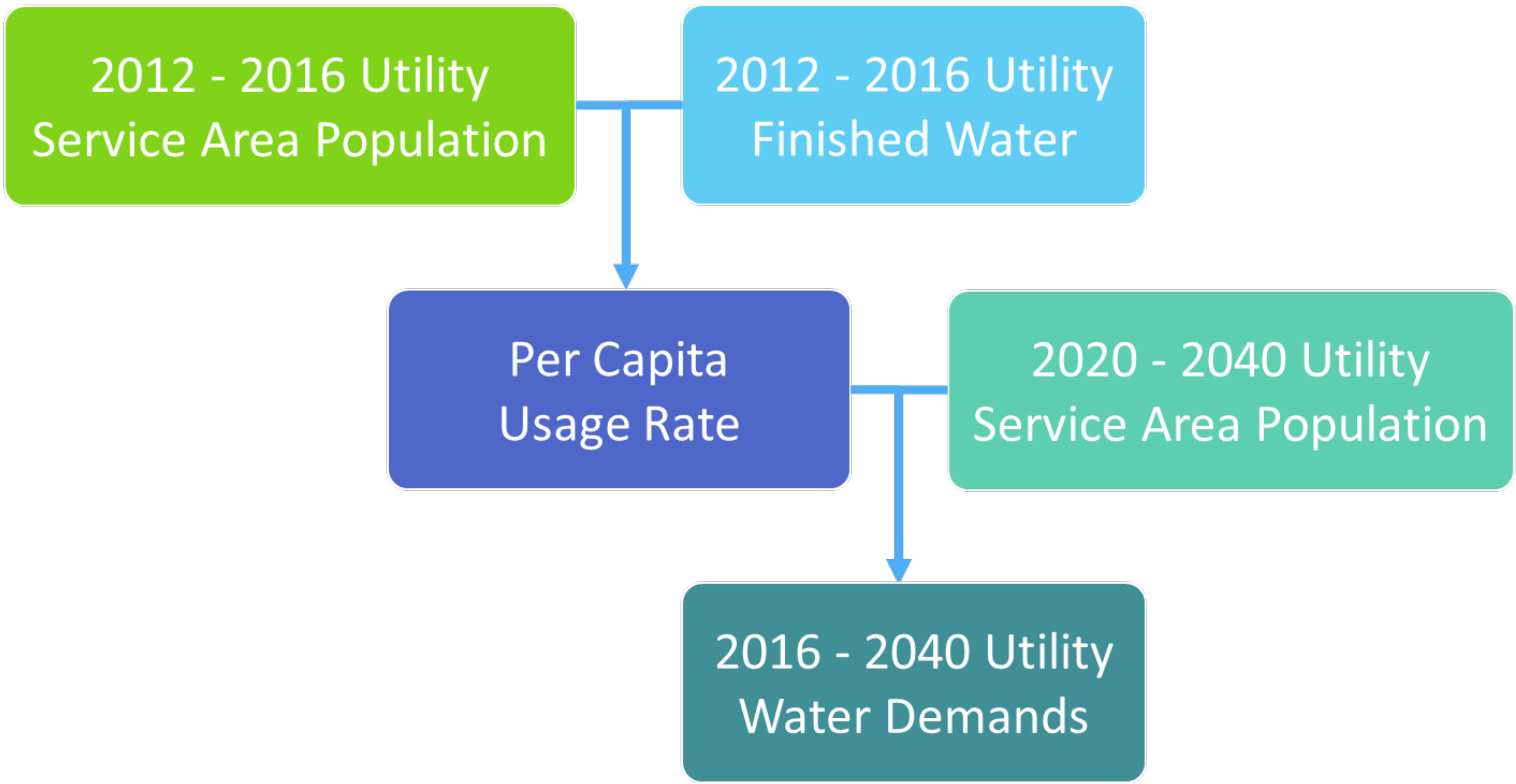
Distribute BEBR 2017 – 2040 Projections to Service Areas

- Based county planning departments' 2040 projections

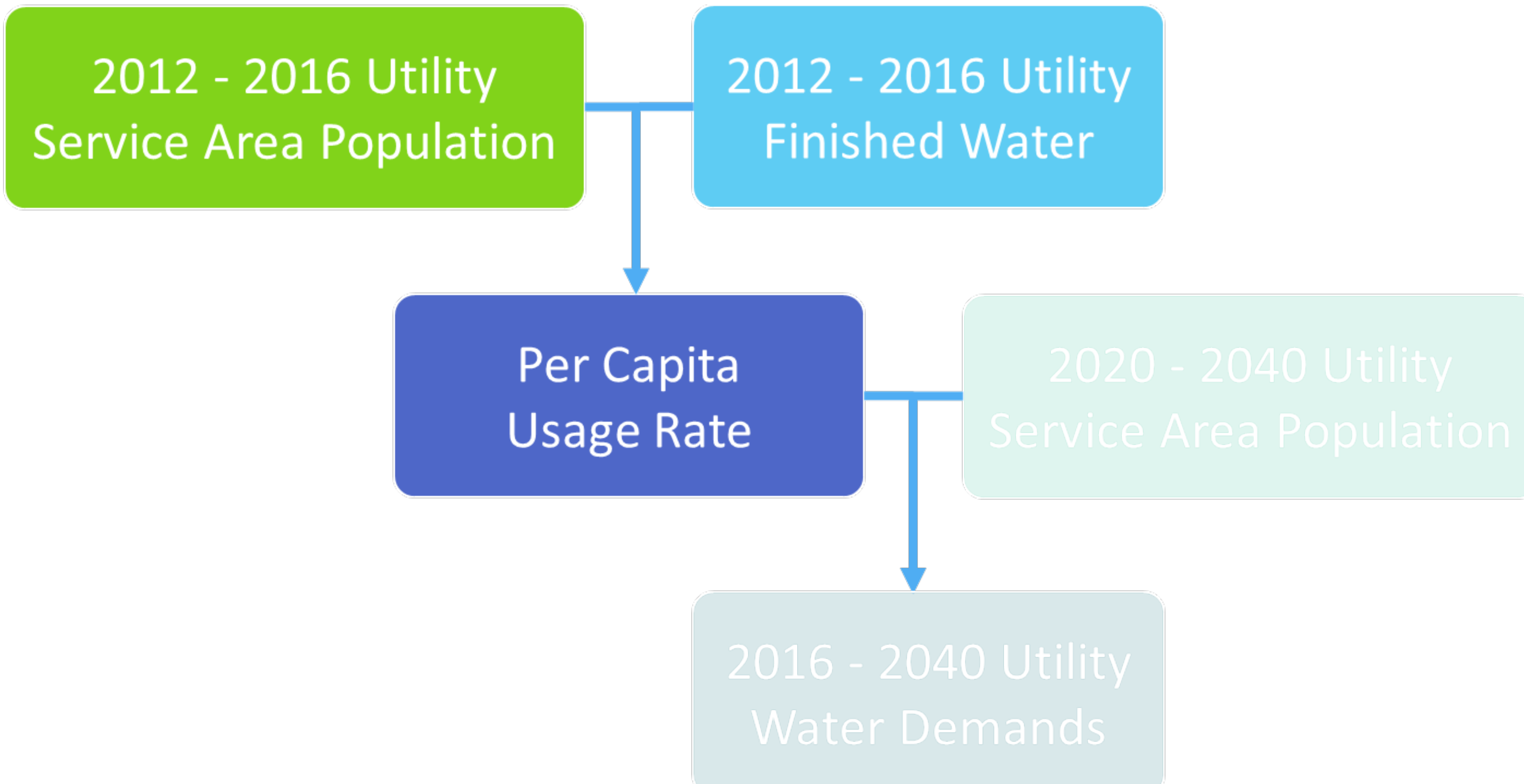
Review Population Projections with Stakeholders

- Adjustments made based on local input

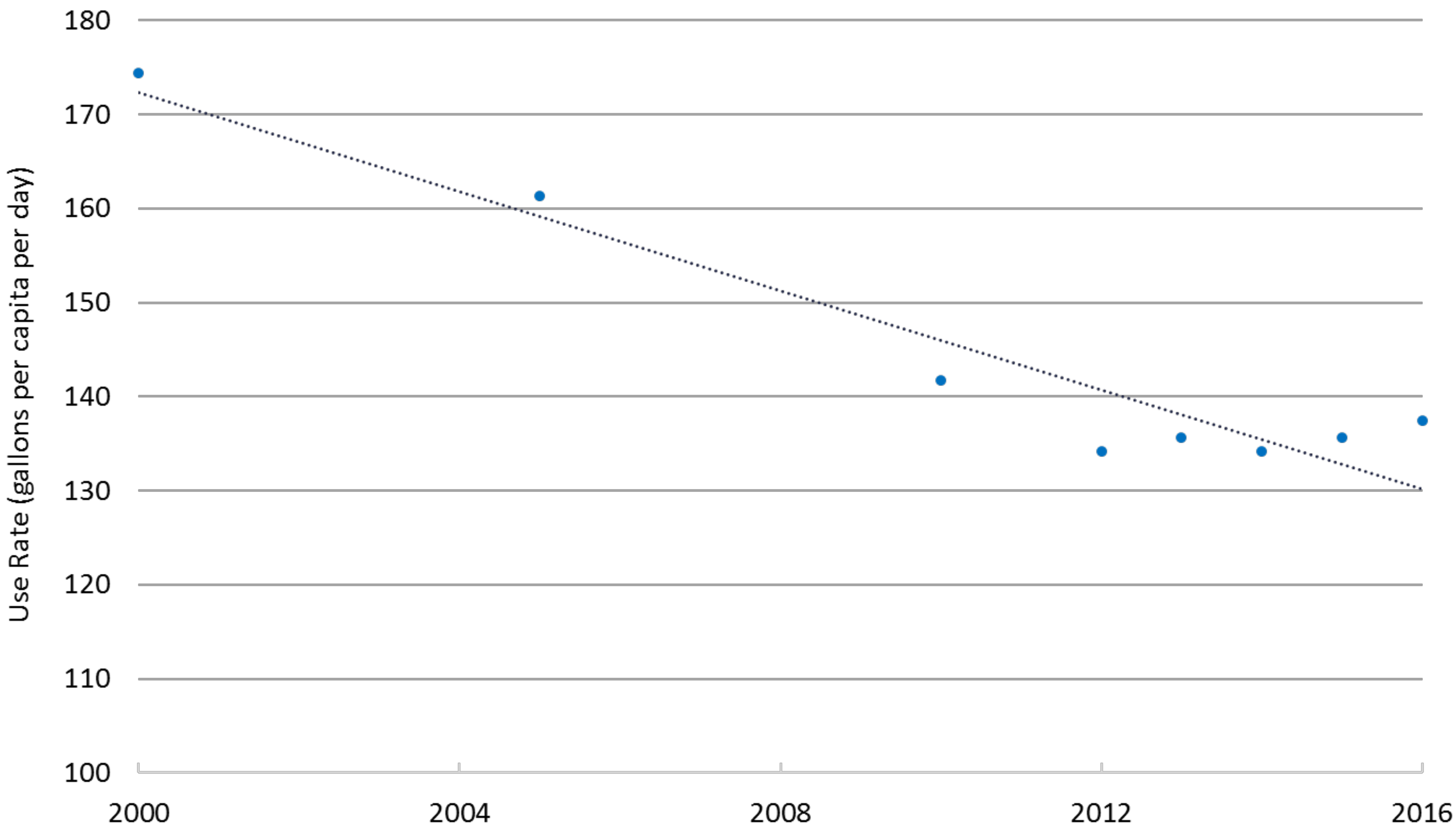
Methodology – PWS Demands



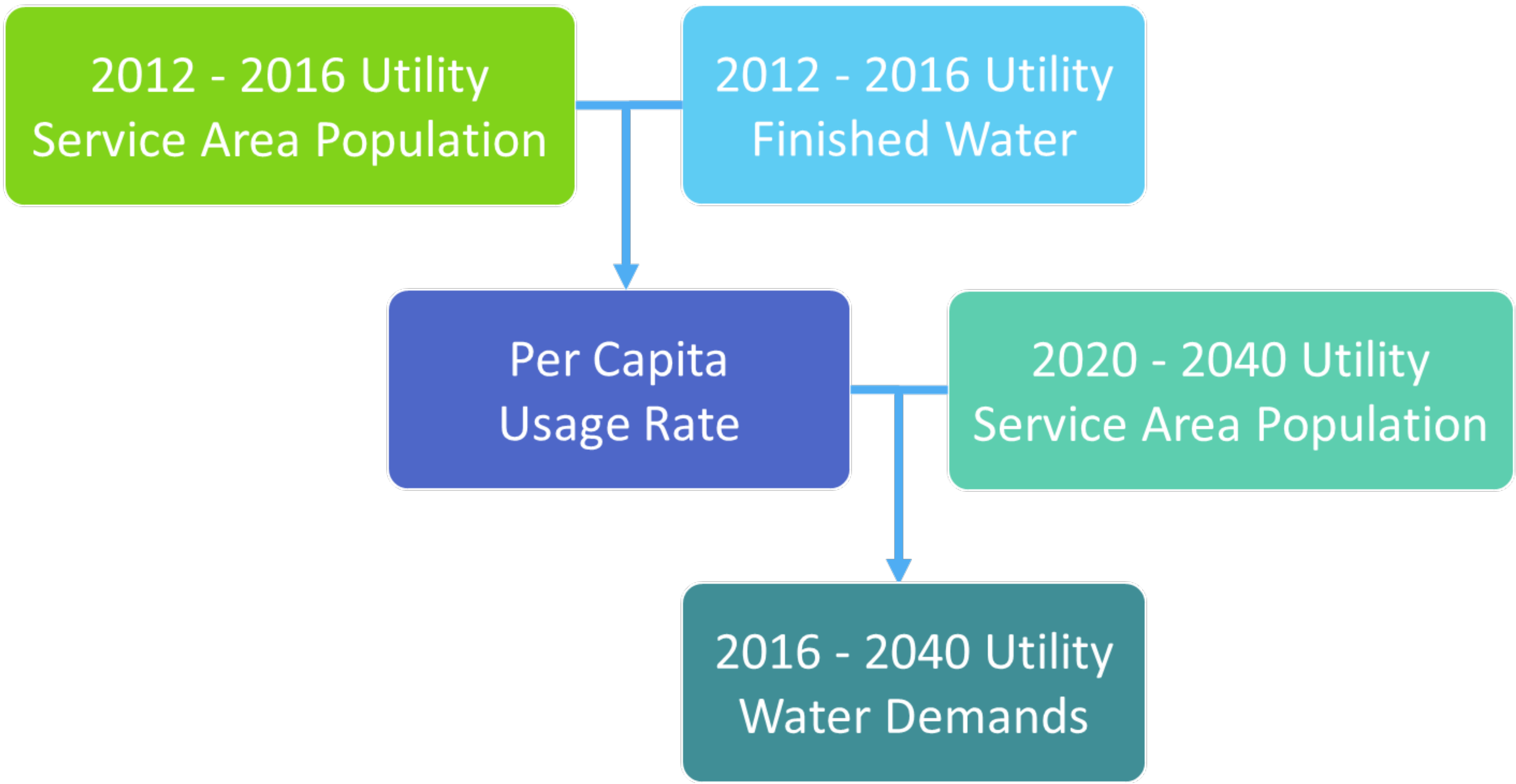
Methodology – PWS Demands



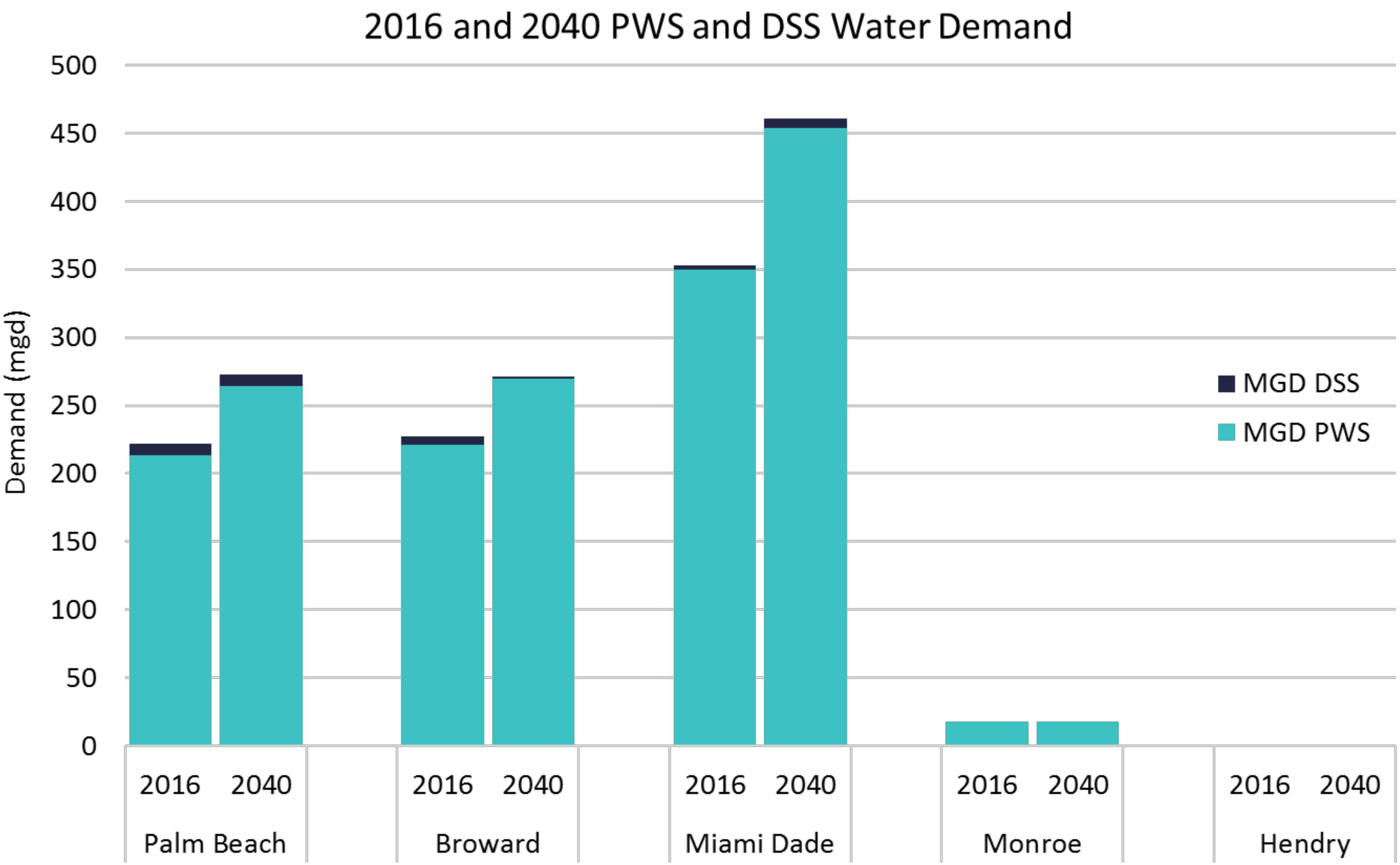
LEC Uniform Per Capita Use Rate



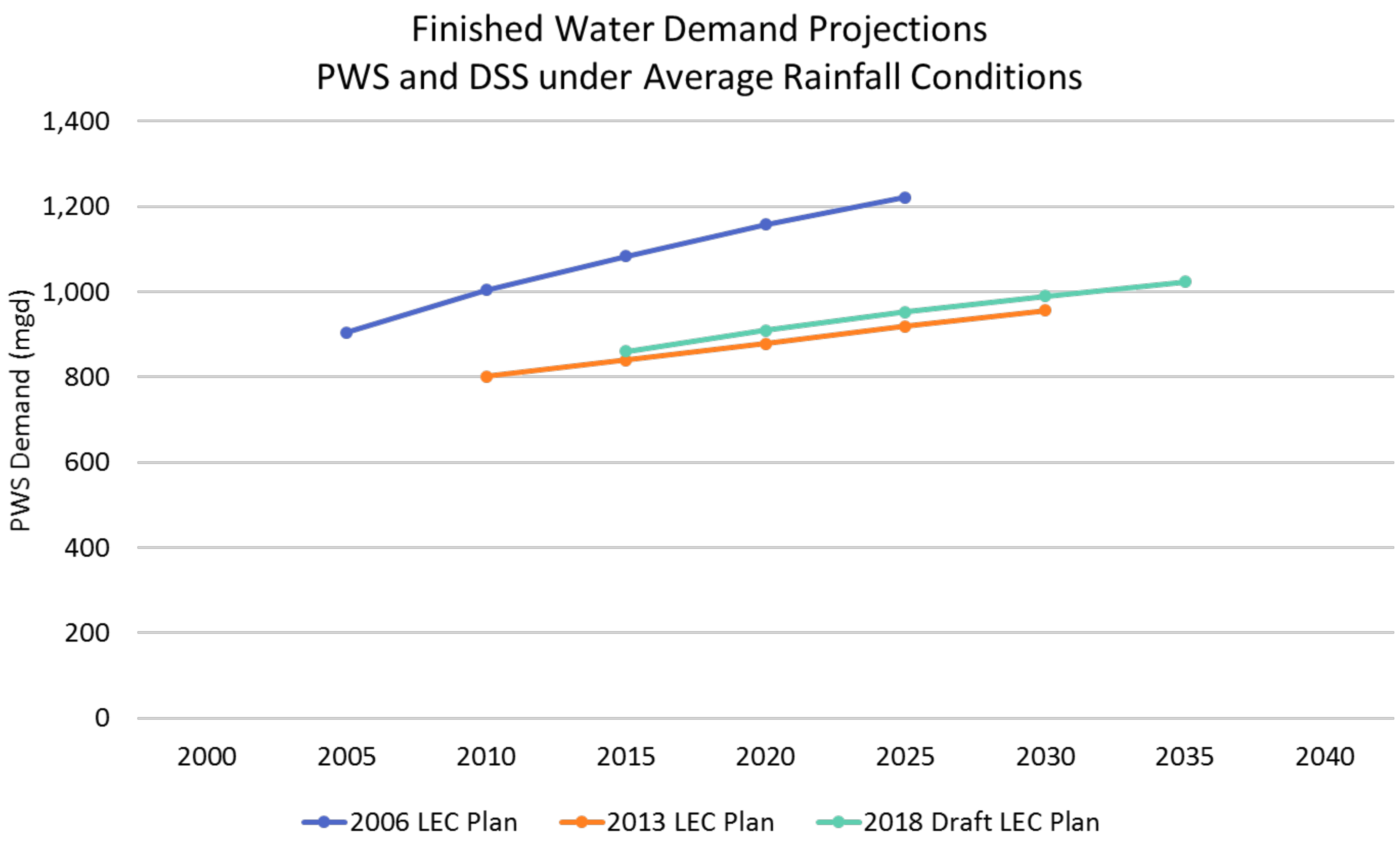
Methodology – PWS Demands



PWS and DSS Projected Demands



History of PWS & DSS Projected Demands



Water Demand Categories



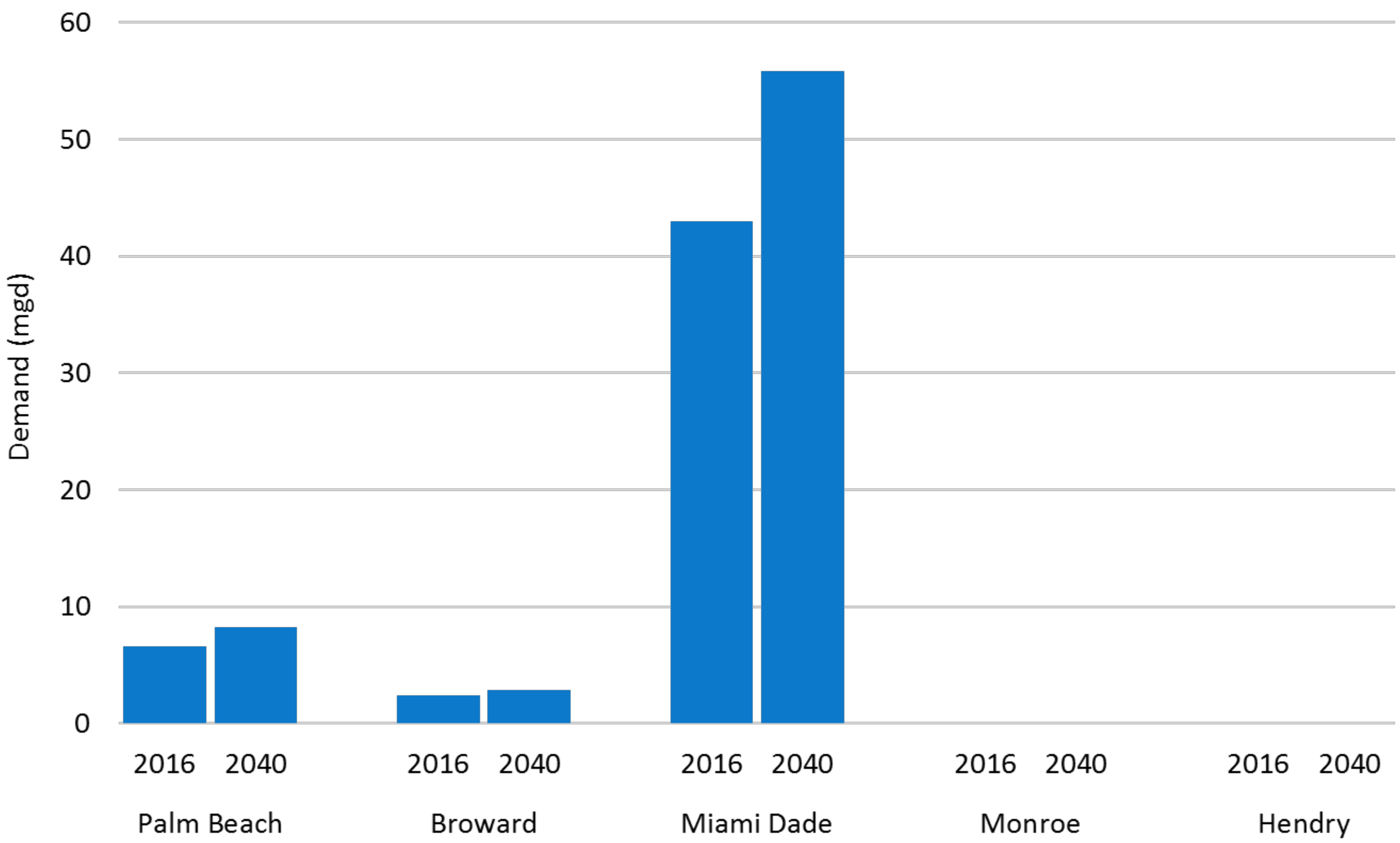
1. Public Water Supply
2. Domestic Self-Supply
3. Industrial/Commercial/Institutional
4. Recreational/Landscape Irrigation
5. Power Generation
6. Agricultural Irrigation

Industrial/Commercial/Institutional

- Main User Categories
  - Mining operations
  - Processing of agricultural products
  - Geothermal heating and cooling
- Methodology
  - Baseline estimates with reported water use
  - Water returned directly to withdrawal source not considered demand
  - Mining operations projected to grow with region's population



ICI Projected Demands



Power Generation

- Power generation facilities in the LEC
  - Palm Beach
    - FPL West County Energy Center
    - Palm Beach County SWA
    - Okeelanta Co-Gen
  - Miami-Dade
    - Turkey Point (Unit 5)
    - City of Homestead (GW Ivey)
    - Miami-Dade County Resource Recovery Center
- Projected water demands
  - 2016: 15.1 mgd
  - 2040: 28.1 mgd

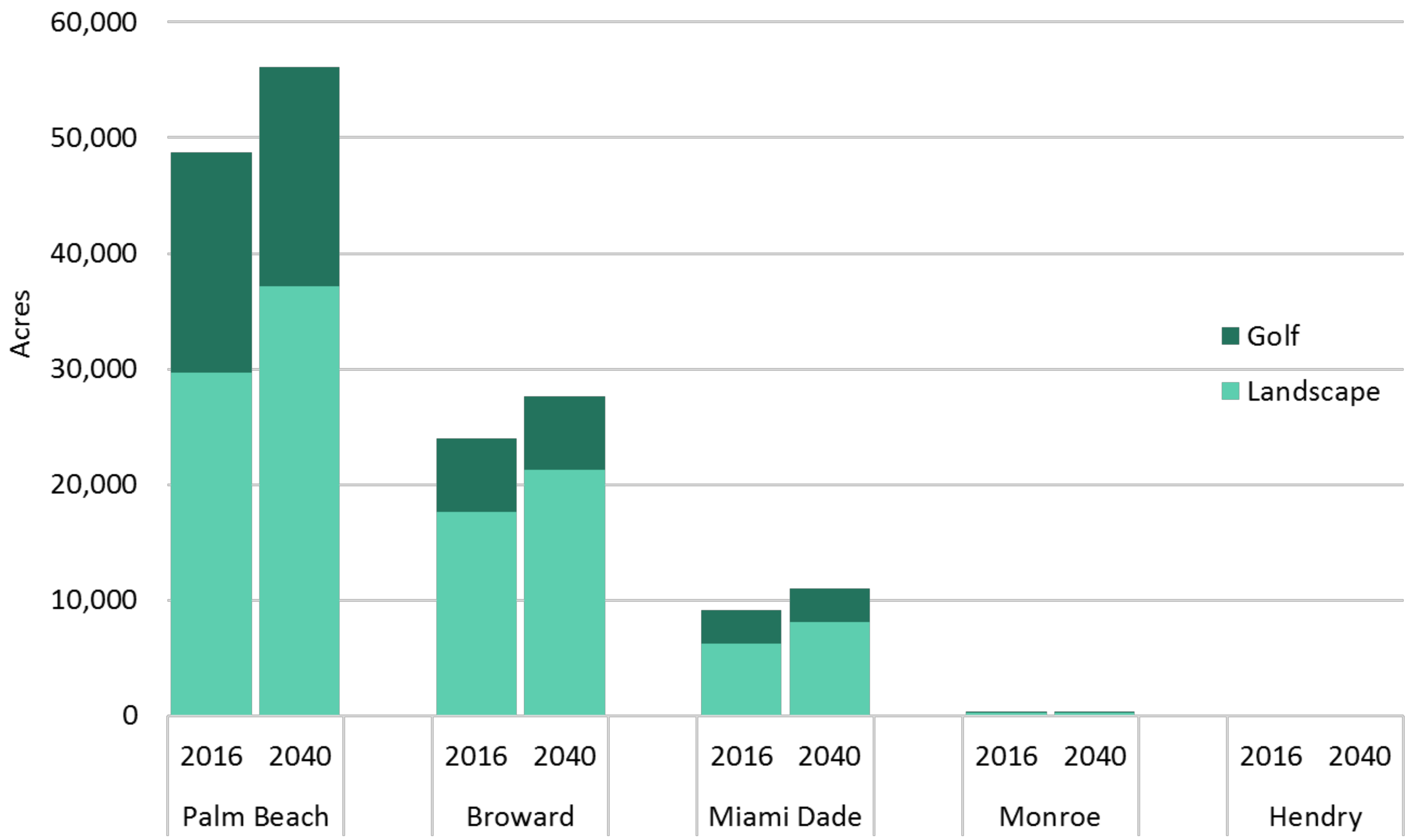


Recreational/Landscape Irrigation



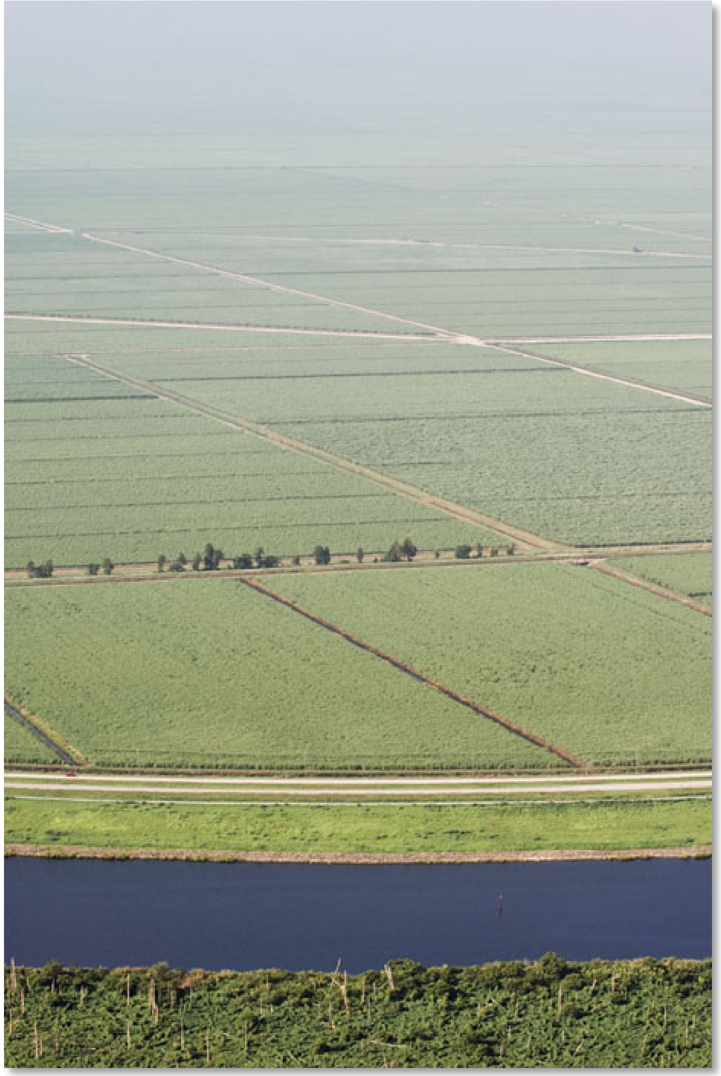
- Methodology
  - 2016 acreage based on regulatory database
  - Landscape acreage and water demands category projected to grow with population
  - Limited planned and approved golf course construction
  - Water demands will be calculated using AFSIRS

2016 and 2040 REC Acreage



Agricultural Irrigation

- Water management districts are required to consider statewide FDACS agricultural projections [Sections 570.93 and 373.709, F.S.] in water supply planning
- Results referred to as FSAID
- Projections done annually, at one time for entire state
- Agricultural projections will be finalized in early 2018 in coordination with FDACS and local stakeholders



LEC Water Demands Summary

Water Use Category	2016	2040
Public Water Supply	802.1	1,005.5
Domestic Self-Supply	17.5	16.9
Industrial/Commercial/Institutional	51.9	67.0
Power Generation	15.1	28.1
Recreational/Landscape Irrigation	In Development	
Agricultural Irrigation	In Development	

Questions



2018 Lower East Coast Water Supply Plan Update - Next Steps



Karin Smith, P.G.

Water Supply Planning – Plan Manager

2018 LEC Stakeholder Kick-off Meeting

November 30, 2017

2018 LEC Plan Update Schedule

- Scope, Schedule, Process
- Population and Water Demands
- Water Source Options and Projects
- FAS Model Results
- Conclusions and Comprehensive Review

Lower East Coast Water Supply Plan Update Process

Mid-2016	Nov. 30, 2017	Feb. 2018	Mid-2018	Sept. 2018
Start Update Process	Kick-off Meeting	Stakeholder Meetings	Stakeholder Meetings	Governing Board Approval

Next Steps

- Utility coordination
- Agricultural coordination
- Floridan aquifer model runs
- Discuss issues identified by the questionnaire



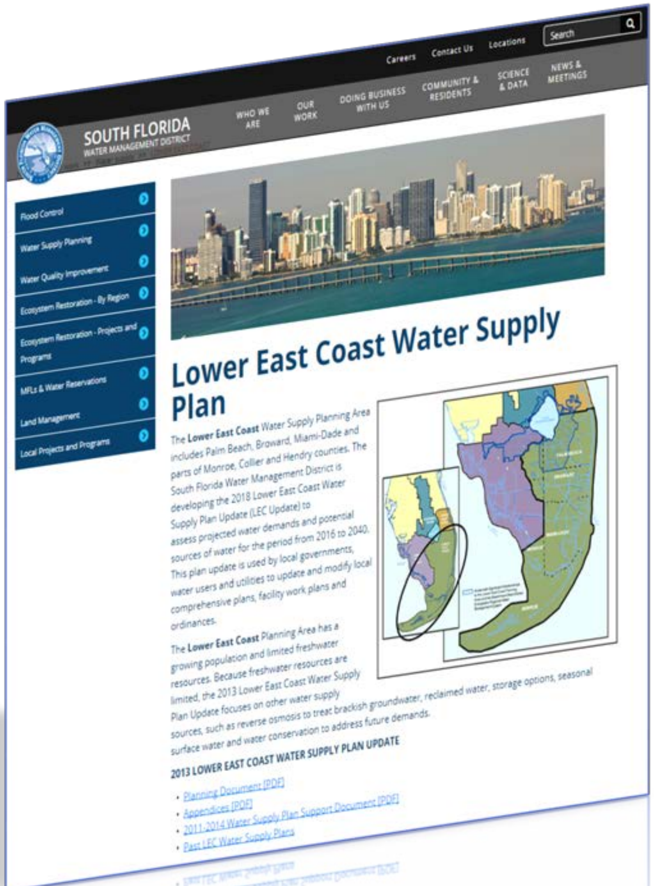
Next Steps (cont.)

➢ Next Stakeholder Meeting: Feb.-Mar. 2018

- Meeting Focus
  - Water Source Options
  - Conservation
  - Water Supply Development Projects
  - Demand Update



Need Water Supply Plan Information?



- Plan information can be found at www.sfwmd.gov/lecplan
- Workshop announcements sent via email
- Next meeting:

  February-March 2018

Staff Resources

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  LEC Plan Manager
  (561) 682-2026
  karsmith@sfwmd.gov
- Mark Elsner, P.E.
  Bureau Chief
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Questions

